REMEDIAL OBJECTIVES REPORT
AND
REMEDIAL ACTION PLAN

CMC PROPERTY
FREEPORT, ILLINOIS

Prepared For:

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1.0 INTRODUCTION

This combined Remedial Objective Report (ROR) and Remedial Action Plan (RAP) comes in response to the approval of the Work Plan, Partial Site Investigation Report, and Partial Remedial Action Plan by the Illinois Environmental Protection Agency (IEPA). The approval by IEPA included several comments, and subsequent telephone conversations with Mr. Jim Mergen, IEPA Project Manager for the CMC Properties Site, which prompted more comments that are addressed in this report. Based on the findings of the investigative activities and IEPA comments, four (4) exposure routes were found to exceed the applicable Tier 1 Remediation Objectives. The exposure routes that require evaluation are the *Groundwater Ingestion Exposure Route*, *Soil Inhalation Exposure Route*, *Soil Ingestion Exposure Route*, and the *Soil Component of the Groundwater Ingestion Exposure Route*. The report is written to address the portion of the CMC Properties Remediation Site, that is located on the northwest side of the Remediation site near the former railroad line. To the north of railroad grade, there is an adjacent oxbow that historically had fill/waste deposited on the east bank of the oxbow, which is also the west side of the former railroad grade. The Site Location Map (Figure 1) shows the location of the fill area.

2.0 CONTAMINANT SOURCE AND FREE PRODUCT DETERMINATION

Before contaminated soil can be left in place at a site by exclusion of an exposure route or due to a Tier 2 Remediation Objective, certain requirements must be met under 35 IAC 742.305. This section of the report addresses each criteria as it applies to the portion of the CMC remediation site that is contaminated with Copper, Lead, Manganese, Nickel, and Zinc.

2.1 Soil Attenuation Capacity

In conducting a Tier 2 evaluation or excluding an exposure pathway, the soil concentration of the organic contaminants of concern cannot exceed the attenuation capacity of the site soils. In this case, the contaminants of concern are inorganic, and, therefore, the organic content does not apply and nothing more is being presented regarding the natural attenuation capacity of the soil relative to the contaminants of concern.

2.2 Soil Saturation Limit

As with the soil attenuation capacity discussed previously, the soil saturation limit for any organic contaminants also needs to be evaluated. For this portion of the CMC site, organic contaminates are not of concern, therefore, the soil saturation limit is not applicable.

2.3 Reactivity

The contaminants of concern are not known to be reactive and, therefore, are not of concern.

2.4 Soil pH

In an effort to satisfy the requirements of 35 IAC 742.305 (d), that requires the soil pH to be between 2.0 and 12.5, the soil sample collected as part of the original Phase II Environmental Site Assessment were tested by the laboratory for pH. All the tested samples yielded a soil pH between 2.0 and 12.5. The pH results are included in Table 1.

2.5 Toxicity

The requirement of 35 IAC 742.305(e) states that soil cannot exhibit the characteristic of toxicity under 35 IAC 721.124 for Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, or Silver. There has to be a detectable level of contaminant before toxicity would be applicable. For this site, Lead was found at a level above a remediation objective. Therefore, a representative soil sample from S-2 was collected and tested for Synthetic Precipitation Leaching Procedure (SPLP) and Toxicity Characteristic Leaching Procedure (TCLP) for Lead. The SPLP and TCLP Lead results are presented in Table 1. The TCLP level was found to be 10 mg/L which is over the 5 mg/L criteria for waste disposal purposes. However, the SPLP result of 0.79 mg/L is much lower and much more applicable to a monofill scenario subject to possible infiltrating precipitation. Because the SPLP result is markedly lower than the TCLP result, and also a more applicable test, we believe requirements of 35 IAC 742.305(e) have been met. Any soil removed from the site would be handled as a waste based on the TCLP result, but for the purpose of address toxicity of the soil in place at the Remediation Site, we believe the SPLP result is a better suited analysis.

3.0 SUPPLEMENTAL INFORMATION

As stated in the Work Plan, the IEPA Office of Site Evaluation was to assist the City with an XRF survey and an EM Survey. The EM survey has been conducted and the intent was to identify possible buried underground storage tanks. The EM Survey results are not relevant to the Lead contaminated area and are not discussed further in this report.

3.1 XRF Screening

The XRF survey was conducted over the entire site, with particular attention given to the proposed location of the recreational path. The location of the XRF screening locations are presented in Figure 2 and the results are presented in Table 2. The initial XRF screening was conducted on April 12, 2005, and additional XRF screening was conducted on June 21, 2005. The second round of the XRF screening was conducted to better define the limits of the inorganic contamination. The most important part of the additional screening was to determine if the sediments in the oxbow indicated that Lead contamination has migrated from the fill area to the oxbow itself. The results indicate that the sediment in the oxbow has not been impacted.

3.2 Confirmation Sampling

Based on the results of the XRF screening, a confirmation sample, S-2, was collected to have analyzed at a laboratory. The sample was tested for total metals, SPLP, and TCLP which are tabulated in Table 1. Additionally, the sample was tested for PNA's and the PNA results are included in Table 3. The laboratory report is included in Appendix A. The S-2 location corresponds to the highest XRF screening location and is considered to be the maximum contaminant level on the site. Based on the XRF screening, the level of Lead are highly variable. The XRF screening and the laboratory confirmation results suggest that an area of approximately 1.2 acres maybe impacted. The thickness of the fill area is also variable due to the nature of how the material was placed. Based on geomorphalogical features, it appears the bank of the oxbow was filled over a period of time by dump truck. The hummocky surface features support this

hypothesis. Without detailed topographic mapping coupled with cross-section test trenches, an accurate determination of the volume of material cannot be made. Based on the work to date, it appears that approximately 30,000 cubic yards of fill may exist along the eastern bank of the oxbow. Depending on the density of the material, this equates to 42,000 to 54,000 tons of material.

3.3 Hydrogeologic Information

As part of the original Phase II Environmental Site Assessment, slug tests were conducted to measure the hydraulic conductivity of the saturated soils at the site. Water levels were also collected so that groundwater flow direction and gradient of the water table could be determined. The slug test results are included in Appendix B. The Groundwater Potentiometric Surface Maps are included in Figures 3a and 3b. The hydraulic conductivity and hydraulic gradient are two (2) key input parameters for the R26 modeling equation.

4.0 LAND USE

The site is currently an abandoned industrial site. The future use is planned to be a recreational path. As a result, the entire site is being investigated as if the use will be recreational. This requires the site specific calculation of remediation objectives that match the planned recreational end use of remedial action that severs the exposure route. The area is currently zoned M-3, which is for heavy industrial use. Once the recreational trail has been built, the site will likely be re-zoned to a recreational use zoning.

5.0 REMEDIAL OBJECTIVES DETERMINATIONS

5.1 Groundwater Ingestion Exposure Route

Based on reviewing the original sampling data from monitoring wells MW-3 and MW-4, it appears that the groundwater is impacted above Tier 1 Remediation Objectives for Iron, Lead, and Manganese. At this Remediation Site groundwater and surface water is of concern. The R26 equation was used to model the lateral extent of the Iron, Lead, and Manganese in groundwater.

5.1.1 Groundwater

The R26 equation was used to model the extent of the groundwater contamination for Iron, Lead, and Manganese from the MW-3 and MW-4 locations. The results of the calculation are located in Appendix C. Table 5 summarizes the calculated distances from the MW-3 and MW-4. Figure 4 shows the calculated distances plotted on the site relative to the Remediation Site Boundary and the City Corporate Boundary. The City Corporate Boundary is also the boundary of the approved Groundwater Use Ordinance. The modeled groundwater plumes extend beyond the Remediation Site Boundary, but are within the boundary of the Freeport Groundwater Use Ordinance boundary. As a result, the groundwater contamination will be addressed by invoking the Groundwater Use Ordinance and the Memorandum of Understanding (MOU) between the IESA and the City of Freeport.

5.1.2. Surface Water

Based on the work discussed in the previous section, the Pecatonica River could be impacted. To verify the modeled groundwater impact, two (2) additional groundwater monitoring wells are proposed to be installed. If the wells are found to be impacted, we propose to use hybrid poplar trees to create a Phyto-Buffer along the portion of the site near the river. Details on the Phyto-Buffer will be presented later in this report. If the wells are not found to be impacted, then confirmation samples will be collected from MW-3 and MW-4 to provide sample confirmation of the original analysis.

5.2 Soil Exposure Routes

In the fill area, the contaminants of concern that were found to exceed the Tier 1 Remediation Objectives included Copper, Lead, Manganese, Nickel and Zinc. Table 6 summarizes which exposure routes for the COC exceed the Tier 1 Remediation Objectives.

5.2.1. Ingestion Exposure Route

All five (5) COCs were found to exceed the Tier 1 Remediation Objectives for the *Soil Ingestion Exposure Route.* Of the COCs, Lead has the lowest RO for the Residential and Commercial/Industrial scenarios. The surface levels of Lead are high enough that attempting to calculate Tier 3 Remediation Objectives based on user scenarios of Picnickers and Groundskeepers was not attempted. Removal of the exposure route is proposed by use of an engineer barrier. Details of the proposed engineered barrier will be provided in Section 6.0 of this report.

5.2.2. Inhalation Exposure Route

Manganese was found to exceed the Residential Tier 1 Remediation Objective for the Inhalation Exposure Route. The proposed engineered barrier that will address the *Ingestion Exposure Route* will also be used to address the Manganese that exceeds the *Inhalation Exposure Route.*

5.2.3. Soil Component to the Groundwater Ingestion Exposure Route

The Lead Tier 1 Remediation Objective for *Soil Component to the Groundwater Ingestion Exposure Route* has been exceeded. The Lead will be addressed with a clay cap engineered barrier. Details of the engineered barrier are presented in the next section of this report.

6.0 PROPOSED REMEDIAL ACTION

Based on the evaluation of the analytical results for the groundwater and soil against the Tier 1 Remediation Objectives, it appears that the exposure routes could be excluded by use of the City of Freeport Groundwater Use Ordinance, a Phyto-Buffer and an engineered barrier.

6.1 Confirmation Sampling

The groundwater modeling was conducted using data from the original investigative activities. Before initiating any groundwater related remedial activities, we proposed to sample MW-3 and MW-4 to confirm the levels of the levels of Lead and Manganese.

6.2 Selected Remedial Technologies

We have selected remedial technologies that will address the soil and groundwater contamination at the Remediation Site.

6.2.1 Groundwater Use Ordinance

To address the Groundwater Ingestion Exposure Route, we propose to invoke to the IEPA approved City of Freeport Groundwater Use Ordinance. A copy of the Ordinance is included in Appendix D. Figure 5 shows the boundary of the Groundwater Use Ordinance relative to the Remediation Site, the site boundary, and the modeled groundwater contamination plumes. As shown on Figure 5, the modeled groundwater plumes do not extend beyond the limits for the Groundwater Use Ordinance Boundary.

6.2.2 Phyto-Buffer

If the confirmation sampling reveals that the groundwater adjacent to the Pecatonica River is impacted with the contaminants of concern, then a Phyto-Buffer will be created by planting hybrid poplar trees along the riverfront portion of the Remediation Site. Figure 6 shows the location of proposed the Phyto-Buffer. A Phyto-Buffer as it is termed here falls under the larger category of Phytoremediation. Phytoremediation is the use of plants to partially or substantially remediate contaminants in the soil and/or groundwater. There are four (4) basic processes that may occur as part of Phytoremediation that can lead to contaminant degradation, removal, or immobilization:

1. Degradation (for destroying or altering organic contaminants)

   - Rhizodegradation – biodegradation enhanced by increased microbial activity in the root zone
   - Phytodegradation – uptake of contaminant in the root system and metabolism of the contaminant by the plant.

2. Accumulation (for containing or removing organics and/or metals)

   - Phytoextraction – contaminant uptake and accumulation in the plant for removal
   - Rhizofiltration – contaminants adsorb to roots for containment and/or removal

3. Dissipation (for removing organics and/or inorganics into the atmosphere)

   - Phytovolatilization – uptake and volatilization of contaminants

4. Immobilization (for containing organic and/or inorganic contaminants)

   - Hydraulic Control – control of shallow groundwater by water uptake
   - Phytostabilization – contaminant immobilization in the soil

In this case, the contaminants of concern are metals. The Phyto-Buffer will be used to provide hydraulic control of the local shallow groundwater near the river and the immobilization of the lead in the root zone. A buffer of hybrid poplar trees would be planted along the bank of the Pecatonica River on the far west side of the Remediation Site. Once established, the trees will draw water down at the buffer area. The draw down of the water table will be from both sides of the buffer. As result the drawn-down would prevent water on the up-gradient side of the buffer to migrate through the buffer and reach the river.

The root zone of the buffer can also cause the soluble lead to become insoluble by oxidizing to lead phosphate. The root zone can also cause no biological process to occur such as sorption, ion exchange, and specific adsorption.

6.2.3 Engineered Barrier

The area that will have an engineered barrier placed over it is shown on Figure 7. The impacted area that will require the engineered barrier is approximately 80,000 square feet in extent. The entire Remediation Site is in the floodway of the Pecatonica River. As a result, a Joint Application to the US Army Corp of Engineers, IEPA Division of Water, and the Illinois Department of Natural Resources will have to be prepared and submitted. It is already known that filling in a floodway will not be allowed by IDNR, which means the clay cap cannot be placed on the existing Lead impacted area because it would increase the elevation of the ground surface. Increasing the elevation of the ground surface by filling in a floodway is prohibited, so it is proposed to remove approximately two (2) feet of material from the impacted area to allow for the placement of the same thickness of a clay soil cap. The upper two (2) feet of material will be impacted with Lead. It is proposed to screen the material to remove the glass, metal, and rock debris from the material and the screened out materials will be landfilled and/or recycled. The remaining material will be profiled for waste disposal purposes. If the TCLP Lead is found to exceed the toxicity level of 5 mg/L under RCRA, then the material will be stabilized on-site using flyash and/or Portland Cement. A pilot test of various amounts of fly ash and Portland Cement will be mixed with the material. Samples of the various mixtures will then be tested for TCLP Lead to determine the

proper amount and type of stabilization additive that could be mixed to the entire waste stream to make the waste non-hazardous. The stabilized materials will then be trucked from the site for disposal at a permitted landfill as Special Waste.

7.0 CONCLUSION AND RECOMMENDATIONS

Based on the additional information gathered as part of this report and the evaluation of the existing and new information, the following are proposed to address the contamination associated with this remediation site:

- City of Freeport Groundwater Use Ordinance / Memorandum of Understanding
- Use of an engineered barrier with annual inspection and maintenance
- Phyto-Buffer

Use of the above addresses all of the contaminants and exposure routes that have been evaluated at the remediation site. A Draft No Further Remediation letter is requested for this remediation site.

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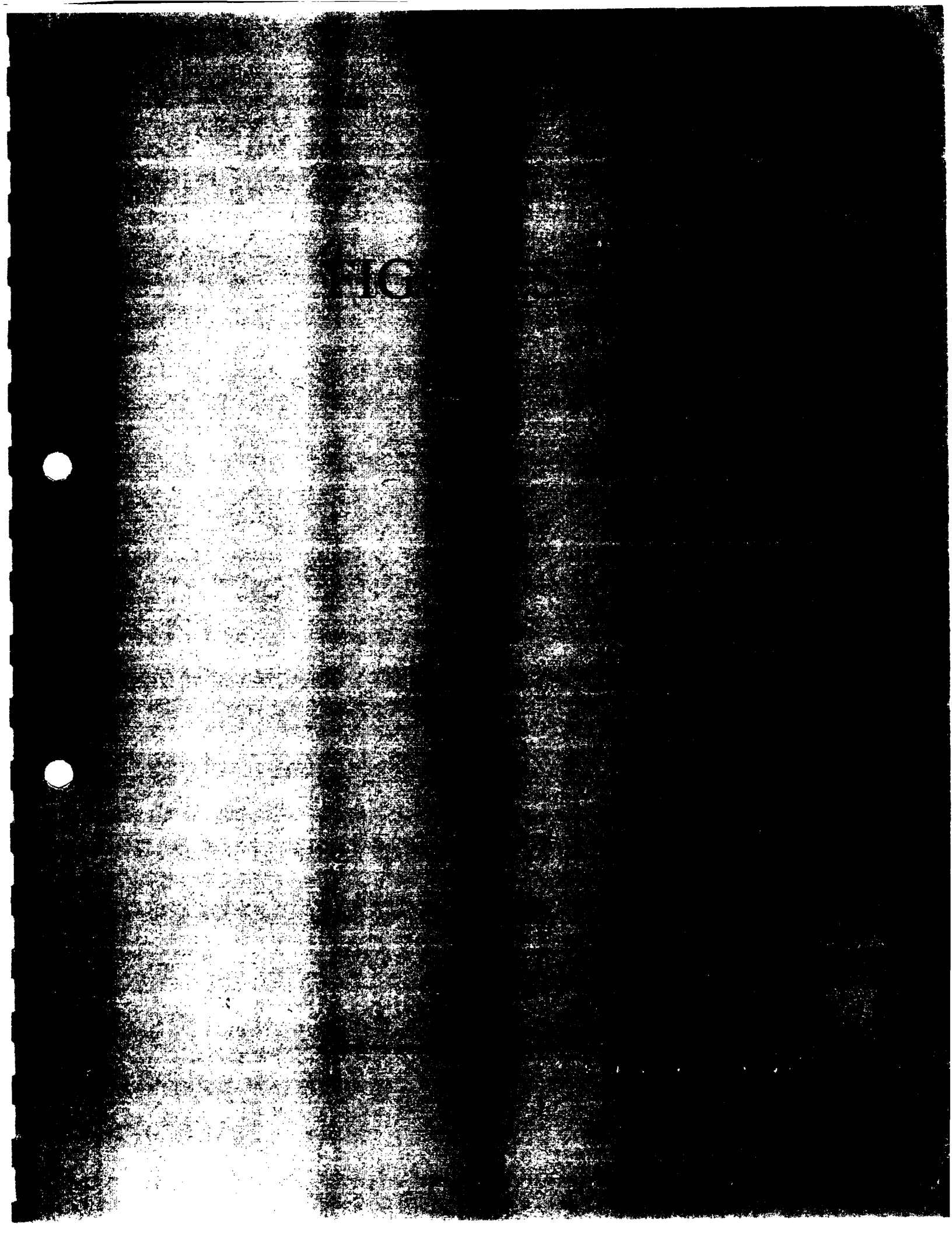

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SCALE: 1" = 300'

	BY

DRAWING:

FIGURE 1
SITE LOCATION MAP

EGLPT/03/43494/43494-screening_recover, FIGURE 1

JOB NUMBER:
43494

SHEET NUMBER:
1 of 8

E

= 150'

	BY

DRAWING:

FIGURE 2
XRF SCREENING LOCATIONS MAP

EGLPT/05/45399/43494-LOCATION, FIGURE 2

JOB NUMBER:
45399

SHEET NUMBER:
2 of 8

E

= 150'

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FIGURE 3a
GROUND WATER POTENTIOMETRIC SURFACE– MAY 15, 2003

EGLPT/03/43494/43494–screening_recover, FIGURE 3A

JOB NUMBER:
43494

SHEET NUMBER:
3 of 8

E

= 150'

	BY

DRAWING:

FIGURE 3b
GROUND WATER POTENTIOMETRIC SURFACE– JUNE 10, 2003

EGLPT/03/43494/43494–screening_recover, FIGURE 3B

JOB NUMBER:

43494

SHEET NUMBER:

4 of 8

E

= 150'

	BY

DRAWING:

FIGURE 4
MODELED GROUND WATER PLUMES

EGLPT/03/43494/43494-screening_recover, FIGURE 4

JOB NUMBER:
43494

SHEET NUMBER:
5 of 8

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= 150'

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FIGURE 5
GROUND WATER USE ORDINANCE

EGLPT/03/43494/43494-screening_recover, FIGURE 5

JOB NUMBER:
43494

SHEET NUMBER:
6 of 8

= 150'

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FIGURE 6
PHYTO – BUFFER LOCATION MAP

EGLPT/03/43494/43494-screening_recover, FIGURE 6

JOB NUMBER:
43494

SHEET NUMBER:
7 of 8

= 150'

	BY

DRAWING:

FIGURE 7
ENGINEERED BARRIER MAP

EGLPT/03/43494/43494-screening_recover, FIGURE 7

JOB NUMBER:
43494

SHEET NUMBER:
8 of 8

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Table 1
Soil Analytical Results
Inorganic Compounds
CMC Property
Freeport, Illinois

				Sample Number :	ME00A0		ME00A1		ME00A2		ME00A4		ME00A5		ME00A6		ME00A7		ME00A8		ME00A9		ME00B0		ME00B1		ME00B2		ME00B3		ME00B4		ME00B6		ME00B7	
				Sampling Location :	B19A		B2A		B2B		B3B		B5A		B6A		B7A		B4A		B4B		B9A		B9B		B8A		B8B		B10B		B10A		B11A	
				Matrix :	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
				Units :	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
				Date Sampled :	04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/30/2003	
				Time Sampled :	10:25		11:05		11:10		12:10		12:35		13:40		16:00		16:10		16:10		16:35		16:40		17:00		17:05		17:30		17:25		10:15	
				Sample Depth:	16 ft.		12 ft.		19 ft.		14 ft.		3 ft.		8-10 ft.		10-12 ft.		0-2 ft.		0-2 ft.		0-2 ft.		6-8 ft		0-2 ft.		18-20 ft		18-20 ft		0-2 ft.		2-3 ft.	
	Exposure Route-specific Values for Soils		Soil Component of the Groundwater Ingestion Exposure Route Values																																			
ANALYTE (Background mg/kg)	Ingestion (mg/kg)	Inhalation (mg/kg)	Class I (mg/L)	Class II (mg/L)	ADL (mg/kg)	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
pH						7		7		7		7		7																									
ALUMINUM (9,200)	---	---	---	---	---	6940	J	7540	J	1210	J	6010	J	7240	J	12500	J	7440	J	4360	J	6330	J	3680	J	12400	J	3950	J	6370	J	5220	J	612	J	11300	J
ANTIMONY (3.3)	31	---	0.006	0.024	*	0.56	UJ	0.59	UJ	0.56	UJ	0.94	J	0.57	UJ	0.58	UJ	0.59	UJ	2.8	J	2.9	J	27.2	J	0 60	UJ	3 4	J	0.65	UJ	0.56	UJ	1.5	J	7.5	J
ARSENIC (11.3)	---	750	29	120	*	5.4		3.3		1.8		25.4		5.4		8.0		8.4		14.3		8.4		20.3		7.7		9.5		2.1		10.6		7.5		34.9	
BARIUM (122)	5500	690,000	2.0	2.0	*	77 0		93 8		12.3		88.0		97.5		106		89.3		43.5		58.9		44.2		162		47.8		90.6		81.2		16.4		563	
BERYLLIUM (0.56)	160	1,300	0.004	0.5	*	0.40		0.51		0.11	J	0.79		0.44		0.72		0 47		1.3		3.4		1.7		0.72		1.8		0.41		0.42		0 69		2.8	
CADMIUM (0.50)	78	1,800	0.005	0.05	*	0.19	J	0.38	J	0.060	J	0.74		0.16	J	0.070	J	0.28	J	2.1		1.8		2.4		0.080	J	1.7		0.37	J	0.30	J	0.60		3.7	
CALCIUM (5,525)	---	---	---	---	---	43200	J	2610	J	46000	J	23800	J	2250	J	3280	J	3280	J	13100	J	16700	J	16000	J	3550	J	7540	J	46300	J	26300	J	2290	J	22600	J
CHROMIUM (13.0)	230	270	0.1	1.0	*	12.1	J	14.4	J	3.3	J	16.3	J	13.5	J	19.2	J	14.6	J	9.8	J	8.8	J	8.7	J	19.1	J	7.1	J	12.9	J	11.2	J	6.2	J	15.7	J
COBALT (8.9)	4700	---	1.0	1.0	*	5.5		7.6		2.9		5.5		7.8		5.2		19.5		6.4		8.9		5.4		8.6		5.4		7.9		5.4		0.63		11.4	
COPPER (12.0)	2900	---	0.65	0.65	*	11.2		12.1		0.86		31.3		12.7		15.2		15.6		46.6		238		138		18.3		83.3		13.0		15.1		19.1		168	
IRON (15,000)	---	---	5.0	5.0	*	14400	J	18000	J	2660	J	31700	J	13700	J	23000	J	17100	J	44100	J	49400	J	39100	J	21800	J	36900	J	11300	J	13800	J	21100	J	41100	J
LEAD (20.9)	400	---	0.0075	0.1	*	10.5	J	12.2	J	6.9	J	12.5	J	13.1	J	12.2	J	13.4	J	105	J	128	J	[redacted]		13.7	J	167	J	11.4	J	8.5	J	114	J	233	J
MAGNESIUM (2,700)	---	---	---	---	---	23300	J	2510	J	25600	J	15100	J	2310	J	3450	J	3160	J	5060	J	3820	J	7130	J	3210	J	2710	J	25100	J	12600	J	605	J	3500	J
MANGANESE (630)	3,700	69,000	0.15	10.0	*	421	J	806	J	378	J	468	J	340	J	296	J	1330	J	314	J	248	J	297	J	615	J	294	J	482	J	705	J	54.2	J	319	J
MERCURY (0.05)	23	10	0.002	0.01	*	0.050	U	0.050	U	0.050	U	0.060		0.050	U	0.080		0.060		0.10		0.18		0.070		0.050		0.12		0.060	U	0.060	U	0.10		0.11	
NICKEL (13.0)	1,600	13,000	0.1	2.0	---	14.4		14.5		3.6		21.3		16.9		13.5		24.2		22.4		29.5		21.9		17.9		20.2		18.3		16.3		4.9		36.6	
POTASSIUM (1,100)	---	---	---	---	*	982	J	461	J	177	J	663	J	547	J	539	J	591	J	521	J	444	J	372	J	670	J	371	J	925	J	792	J	631	J	1670	J
SELENIUM (0.37)	390	---	0.05	0.05	*	0.52	U	0.71		0.52	U	0.54	U	0.53	U	0.59		0.96		1.7		1.1		1.3		0.55	U	0.95		0.64		0.77		2.1		2.2	
SILVER (0.50)	390	---	0.05	---	---	0.20	U	0.21	U	0.20	U	0.21	U	0.21	U	0.21	U	0.21	U	0.19	U	0.25		0.20	U	0.22	U	0.20	U	0.23	U	0.20	U	0.22	U	0.24	U
SODIUM (130)	---	---	---	---	*	200		89.9		211		155		192		155		182		68.2		96.0		66.5	U	124		68.2	U	299		190		390		276	
THALLIUM (0.4)	6.3	---	0.002	0.02	*	0.66	R	0.69	R	0.65	R	0.68	R	0.67	R	0.68	R	0.68	R	0.61	R	0.64	R	0.63	R	0.69	R	0.65	R	0.75	R	0.65	R	0.71	R	0.76	R
VANADIUM (25.0)	550	---	0.049	0.1	*	24.2		21.0		6.1		90.6		22.4		28.3		26.9		26.5		20.0		16.5		30.7		16.0		24.0		23.0		8.3		84.7	
ZINC (60.2)	23,000	---	5.0	10	*	33.6	J	76.8	J	12.8	J	52.6	J	45.4	J	57.0	J	47.5	J	199	J	278	J	372	J	58.9	J	175	J	42.8	J	37.5	J	41.6	J	311	J
CYANIDE (0.50)	1600	---	---	---	---	0.090		0.040		0.060		0.060		0.040		0.050		0.050		0.14		0.40		0.28		0.11		0.14		0.030	U	0.070		0.36		0.27	

Table 1
Soil Analytical Results
Inorganic Compounds
CMC Property
Freeport, Illinois

	Exposure Route-specific Values for Soils		Soil Component of the Groundwater Ingestion Exposure Route Values																																	
Sample Number :						ME00B8		ME00B9		ME00C0		ME0096S		ME00C1		ME00C2		ME00C3		ME00C4		ME00C5		ME00C8		ME00C9		ME00D0		ME00C4D		ME00C4S					
Sampling Location :						B12A		B12B		B13A		B1A		B14A		B15A		B16A		B17B		B17A		S1		B18A		B18B		B17B		B17B		S-2		S-2	
Matrix :						Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Units :						mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/kg		mg/L (SPLP)	
Date Sampled :						04/30/2003		04/30/2003		04/30/2003		04/29/2003		04/30/2003		04/30/2003		04/30/2003		04/30/2003		04/30/2003		04/30/2003		04/30/2003		04/30/2003		04/30/2003		04/30/2003		7/7/2005		7/7/2005	
Time Sampled :						10:45		10:50		11:05		10:10		11:30		11:45		12:00		14:15		14:00		14:30		15:00		15:05		14:15		14:15		1455		1455	
Sample Depth:						1-3 ft.		6-8 ft.		0-2 ft.		16 ft.		2-3 ft.		14-16 ft.		2-6 ft.		14-16 ft.		2-4 ft		Surface		3 ft.		17-19 ft.		14-16 ft.		14-16 ft		Surface		Surface	
ANALYTE (Background mg/kg)	Ingestion (mg/kg)	Inhalation (mg/kg)	Class I (mg/L)	Class II (mg/L)	ADL (mg/kg)	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
pH																																					
ALUMINUM (9,200)	—	—	—	—	—	3090	J	8110	J	9190	J			6390		7560		3920		4760		4840		493		5330		6450		5410				NS		NS	
ANTIMONY (3.3)	31	—	0.006	0.024	*	7.8	J	0.64	UJ	3.9	J			3.9	J	0.61	UJ	11.5	J	0.61	UJ	17.9	J	0.56	UJ			0.61	UJ	0.61	UJ			NS		NS	
ARSENIC (11.3)	—	750	29	120	*	10.5		1.9		22.5		14.9		29.4		5.6		27.6		2.7		14.6		4.8		22.9		3.1		2.4		11.9		37		0.05	U
BARIUM (122)	5500	690,000	2.0	2.0	*	36.2		132		75.0		595		118		137		261		64.5		189		9.3		596		73.5		51.2		538		420		0.3	J
BERYLLIUM (0.56)	160	1,300	0.004	0.5	*	1.2		0.57		4.2		11.1		2.2		0.48		0.74		0.31	J	0.98		0.37		1.4		0.39		0.35	J	11.3		NS		NS	
CADMIUM (0.50)	78	1,800	0.005	0.05	*	1.7		0.070		6.4		11.2		2.6		0.36		11.0		0.30	J	2.2		0.30		42.9		0.30		0.14	J	11.3		2.8		0.002	U
CALCIUM (5,525)	—	—	—	—	—	14300	J	3610	J	18600	J			13900		3130		11200		2040		9350		6050		10400		4810		1940				NS		NS	
CHROMIUM (13.0)	230	270	0.1	1.0	*	7.2	J	13.5	J	10.6	J	63.9	J	11.2		14.0		67.8		8.9		26.5		2.5		32.3		13.2		9.7		58.1		160		0.018	
COBALT (8.9)	4700	—	1.0	1.0	*	5.7		3.5		9.0		115		10.5		5.8		29.3		8.4		5.5		0.87		6.8		5.6		4.9		120		NS		NS	
COPPER (12.0)	2900	—	0.65	0.65	*	197		11.8		128		72.1		243		13.1		259		8.2		53.1		11.8		519		10.9		8.1		65.0		NS		NS	
IRON (15,000)	—	—	5.0	5.0	*	42700	J	11700	J	68400	J			48100		17800		11000		11400		38000		9800		06000		14200		12100				NS		NS	
LEAD (20.9)	400	—	0.0075	0.1	*			14.6	J	103	J	23.4	J	305		16.2				9.3				40.1				14.0		9.6		13.4					
MAGNESIUM (2,700)	—	—	—	—	—	6690	J	2290	J	2070	J			4230		2970		5130		1650		2190		337		3270		3420		1910				NS		NS	
MANGANESE (630)	3,700	69,000	0.15	10.0	*	296	J	202	J	507	J	858	J	381	J	683	J	974	J	1150	J	1170	J	41.5	J	729	J	461	J	365		751	J	NS		NS	
MERCURY (0.05)	23	10	0.002	0.01	*	0.10		0.050	U	0.12		0.63		0.66		0.060	J	2.0		0.060	U	0.18	J	0.040	U	1.6		0.090		0.060	U	0.54		0.46			
NICKEL (13.0)	1,600	13,000	0.1	2.0	—	20.5		10.4		43.5		125		32.6		16.5		50.2		14.2		19.0		3.7		57.3		12.9		11.5		125		NS		NS	
POTASSIUM (1,100)	—	—	—	—	*	332	J	485	J	789	J			889		669		517		614		402		208		608		683		710				NS		NS	
SELENIUM (0.37)	390	—	0.05	0.05	*	1.4		0.59	U	1.9		3.0		1.4		0.56	U	1.7		0.57	U	0.97		1.0		1.9		0.57	U	0.57	U	2.6		20	J	0.02	U
SILVER (0.50)	390	—	0.05	—	—	0.21	U	0.23	U	0.21	U	11.3		0.27		0.22	U	0.74		0.22	U	0.20	U	0.20	U	0.57		0.22	U	0.22	U	11.7		10	J	0.01	U
SODIUM (130)	—	—	—	—	*	69.7	U	251		70.9	U			107		158		65.5	U	141		66.2	U	227		1420	U	187		106				NS		NS	
THALLIUM (0.4)	6.3	—	0.002	0.02	*	0.66	R	0.74	R	0.68	R	2.7		0.70	UJ	0.71	UJ	5.5	J	0.71	UJ	2.7	J	0.65	UJ	2.3	J	0.71	UJ	0.71	UJ	3.9		NS		NS	
VANADIUM (25.0)	550	—	0.049	0.1	*	14.5		22.8		26.8		142		23.1		26.3		14.6		15.1		35.5		4.7		27.0		19.3		16.4		137		NS		NS	
ZINC (60.2)	23,000	—	5.0	10	*	251	J	40.4	J	922	J	196	J	363		69.7		2200		46.4		685		37.4		8370		71.9		48.5		158		NS		NS	
CYANIDE (0.50)	1600	—	—	—	—	0.17		0.060		0.23		6.1		0.25		0.030	U	10.4		0.14		2.6		0.15		0.78		0.030	U	0.18		5.9		NS		NS	

Table 2
XRF Screening Results
CMC Property
Freeport, Illinois

		Sampling Location :	XRF-1		XRF-2		XRF-3		XRF-4		XRF-5		XRF-6		XRF-7		XRF-8		XRF-9		XRF-10		XRF-11		XRF-12		XRF-13		XRF-14		XRF-15		XRF-16	
		Matrix	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
		Units :	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
		Date Sampled :	4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005	
		Time Sampled :	10:32		10:35		10:39		10:42		10:45		10:48		10:50		10:52		10:55		10:58		11:01		11:03		11:05		11:08		11:11		11:13	
	Exposure Route-specific Values for Soils																																	
ANALYTE (Background mg/kg)	Ingestion (mg/kg)	Inhalation (mg/kg)	ADL (mg/kg)	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM (9,200)	---	---	---	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
ANTIMONY (3.3)	31	---	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
ARSENIC (11.3)	---	750	*	LOD	<	LOD	<	LOD	<	62.7		LOD	<	LOD	<	104.9		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	32.9	
BARIUM (122)	5500	690,000	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
BERYLLIUM (0.56)	*160*	*1,300*	*	*NS*		*NS*		*NS*		*NS*		*NS*		*NS*		*NS*		*NS*		*NS*		*NS*		*NS*		*NS*		*NS*		*NS*		*NS*		*NS*	
CADMIUM (0.50)	78	1,800	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
CALCIUM (5,525)	---	---	---	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
CHROMIUM (13.0)	230	270	*	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<
COBALT (8.9)	4700	---	*	LOD	<	LOD	<	455.2		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	424.8		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<
COPPER (12.0)	2900	---	*	LOD	<	LOD	<	LOD	<	147		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	133.1	
IRON (15,000)	---	---	*	10496		5539.2		15488		24000		6688		11296		11596.8		12396.8		18291.2		10995.2		13990.4		3337.6		5148.8		10899.2		16192		17292.8	
LEAD (20.9)	400	---	*	89.1		LOD	<	138.9		187.7		[redacted]		215		100.5		101.9		91.9		141.5		137		LOD	<	36.7		66.8		122.3		105.6	
MAGNESIUM (2,700)	---	---	---	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
MANGANESE (630)	3,700	69,000	*	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	449.6		330.4		LOD	<	LOD	<	LOD	<	LOD	<
MERCURY (0.05)	23	10	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
NICKEL (13.0)	1,600	13,000	---	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<
POTASSIUM (1,100)	---	---	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SELENIUM (0.37)	390	---	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SILVER (0.50)	390	---	---	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SODIUM (130)	---	---	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
THALLIUM (0.4)	6.3	---	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
VANADIUM (25.0)	550	---	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
ZINC (80.2)	23,000	---	*	LOD	<	LOD	<	187.3		484.4		130		142.1		150.9		162.3		236.2		162.2		176.2		62.3		LOD	<	168.4		239.8		214.8	
CYANIDE (0.50)	1600	---	---	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	

Table 2
XRF Screening Results
CMC Property
Freeport, Illinois

	Exposure Route-specific Values for Soils																																			
Sampling Location :				XRF-17		XRF-18		XRF-19		XRF-20		XRF-21		XRF-22		XRF-23		XRF-24		XRF-25		XRF-26		XRF-27		XRF-28		XRF-29		XRF-30		XRF-31		XRF-32	
Matrix :				Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Units :				mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/kg		mg/kg	
Date Sampled :				4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005	
Time Sampled :				11:15		11:17		11:19		11:23		11:34		11:36		11:39		11:41		11:43		11:46		11:48		11:50		11:53		11:55		11:57		12:00	
ANALYTE (Background mg/kg)	Ingestion (mg/kg)	Inhalation (mg/kg)	ADL (mg/kg)	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM (9,200)	----	----	----	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
ANTIMONY (3.3)	31	----	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
ARSENIC (11.3)	----	750	*	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	44.2		72.1		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<
BARIUM (122)	5500	690,000	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
BERYLLIUM (0.56)	160	1,300	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
CADMIUM (0.50)	78	1,800	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
CALCIUM (5,525)	----	----	----	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
CHROMIUM (13.0)	230	270	*	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<
COBALT (8.9)	4700	----	*	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	482.4		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<
COPPER (12.0)	2900	----	*	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	113		LOD	<	LOD	<	LOD	<	LOD	<	87.3		LOD	<	136		LOD	<	LOD	<	LOD	<	LOD	<
IRON (15,000)	----	----	*	10195.2		17088		22297.6		10496		6419.2		20595.2		21593.6		10099.2		12294.4		10796.8		10995.2		17190.4		18995.2		24294.4		14796.8		13094.4	
LEAD (20.9)	400	----	*	50.8		85.7		250.2		256.8		57.2		180.7		228.4		38		37.5		39.7		84.9		166.4		189.3		140.6		41.2		40.1	
MAGNESIUM (2,700)	----	----	----	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
MANGANESE (630)	3,700	69,000	*	433.6		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	539.2		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	596.4		684		NS	
MERCURY (0.05)	23	10	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
NICKEL (13.0)	1,600	13,000	----	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	370.2		452.8		828.4		NS	
POTASSIUM (1,100)	----	----	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SELENIUM (0.37)	390	----	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SILVER (0.50)	390	----	----	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SODIUM (130)	----	----	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
THALLIUM (0.4)	6.3	----	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
VANADIUM (25.0)	550	----	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
ZINC (60.2)	23,000	----	*	112.7		186.8		309		219		87.4		260.4		362.6		84.7		83.8		86.1		121.5		146.6		218.8		227.8		76.1		83.3	
CYANIDE (0.50)	1600	----	----	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	

Table 2
XRF Screening Results
CMC Property
Freeport, Illinois

	Exposure Route-specific Values for Soils			Sampling Location :		XRF-33		XRF-34		XRF-35		XRF-36		XRF-37		XRF-38		XRF-39		XRF-40		XRF-41		XRF-42		XRF-43		XRF-44		XRF-45		XRF-46	
				Matrix :		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
				Units :		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
				Date Sampled :		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005	
				Time Sampled :		12:02		12:04		12:07		12:11		12:13		12:16		13:45		13:49		13:51		13:54		13:56		13:59		14:15		14:19	
ANALYTE (Background mg/kg)	Ingestion (mg/kg)	Inhalation (mg/kg)	ADL (mg/kg)	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM (9,200)	—	—	—	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
ANTIMONY (3.3)	31	—	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
ARSENIC (11.3)	—	750	*	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	49.3		71		LOD	<	LOD	<	60.5		LOD	<	LOD	<	LOD	<
BARIUM (122)	5500	690,000	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
BERYLLIUM (0.56)	160	1,300	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
CADMIUM (0.50)	78	1,800	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
CALCIUM (5,525)	—	—	—	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
CHROMIUM (13.0)	230	270	*	LOD	<	LOD	<	LOD	<	LOD	<	[redacted]		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<
COBALT (8.9)	4700	—	*	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	495.2		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<
COPPER (12.0)	2900	—	*	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	[redacted]		74.2		351.8	
IRON (15,000)	—	—	*	13299.2		55091.2		9344		15193.6		13196.8		18790.4		21299.2		28288		17292.8		12499.2		21888		β5452.8		8608		32486.4	
LEAD (20.9)	400	—	*	69.1		60.9		94.4		249.2		64.1		55		70.6		172		105.1		38.5		119.6		[redacted]		72		[redacted]	
MAGNESIUM (2,700)	—	—	—	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
MANGANESE (630)	3,700	69,000	*	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	[redacted]		771.6		1649.6	
MERCURY (0.05)	23	10	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
NICKEL (13.0)	1,600	13,000	—	281.8		LOD	<	LOD	<	257	<	315.6		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<
POTASSIUM (1,100)	—	—	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SELENIUM (0.37)	390	—	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SILVER (0.50)	390	—	—	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SODIUM (130)	—	—	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
THALLIUM (0.4)	6.3	—	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
VANADIUM (25.0)	550	—	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
ZINC (60.2)	23,000	—	*	72.9		160.2		122.3		483.6		108.9		155.1		LOD	<	309.2		180.5		72.9		208.2		[redacted]		379.8		3638.4	
CYANIDE (0.50)	1600	—	—	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	

[redacted]

Table 2
XRF Screening Results
CMC Property
Freeport, Illinois

	Sampling Location :	XRF-47		XRF-48		XRF-49		XRF-50		XRF-51		XRF-52		XRF-53		XRF-54		XRF-55		XRF-56		XRF-57		XRF-58		XRF-59		XRF-60		XRF-61		XRF-62		XRF-63	
	Matrix :	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
	Units :	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
	Date Sampled :	4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005	
	Time Sampled :	14:23		14:29		14:37		14:42		14:46		14:53		15:03		15:13		15:16		15:24		15:34		15:39		15:41		15:46		15:48		15:52		15:54	
	Exposure Route-specific Values for Soils																																		
ANALYTE (Background mg/kg)	Ingestion (mg/kg)	Inhalation (mg/kg)	ADL (mg/kg)	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM (9,200)	—	—	—	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
ANTIMONY (3.3)	31	—	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
ARSENIC (11.3)	—	750	*	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	273.4		LOD	<	140.7		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	38.1		LOD	<
BARIUM (122)	5500	690,000	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
BERYLLIUM (0.56)	160	1,300	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
CADMIUM (0.50)	78	1,800	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
CALCIUM (5,525)	—	—	—	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
CHROMIUM (13.0)	230	270	*	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<
COBALT (8.9)	4700	—	*	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	447.2		LOD	<	LOD	<	LOD	<	LOD	<
COPPER (12.0)	2900	—	*	LOD	<	211.8		101.4		LOD	<	LOD	<	LOD	<	357		[redacted]		386.8		814.4		LOD	<	104.3		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<
IRON (15,000)	—	—	*	16089.6		43596.8		13888		9676.8		10796.8		7238.4		17292.8		98355.2		31692.8		42291.2		30387.2		7385.6		12294.4		14592		13798.4		12697.6		30899	
LEAD (20.9)	400	—	*	[redacted]		[redacted]		56.1		41.1		71.7		39.1		[redacted]		[redacted]		[redacted]		[redacted]		113.9		124.5		160.1		153		164.9		72.1		111.3	
MAGNESIUM (2,700)	—	—	—	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
MANGANESE (630)	3,700	69,000	*	LOD	<	LOD	<	LOD	<	425.2		LOD	<	LOD	<	[redacted]		[redacted]		[redacted]		2988.8		LOD	<	LOD	<	653.2		LOD	<	LOD	<	620.8		LOD	<
MERCURY (0.05)	23	10	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
NICKEL (13.0)	1,600	13,000	—	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	281.8		[redacted]		LOD	<	449.2		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	383.8	
POTASSIUM (1,100)	—	—	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SELENIUM (0.37)	390	—	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SILVER (0.50)	390	—	—	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
SODIUM (130)	—	—	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
THALLIUM (0.4)	6.3	—	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
VANADIUM (25.0)	550	—	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	
ZINC (60.2)	23,000	—	*	1009.6		1120		163.2		150.2		175.5		136.5		2969.6		[redacted]		2708.8		3049.6		295.8		476		193.1		213.8		301.2		170.4		234	
CYANIDE (0.50)	1600	—	—	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS	

[redacted]

Table 2
XRF Screening Results
CMC Property
Freeport, Illinois

	Exposure Route-specific Values for Soils																																			
Sampling Location :				XRF-64		XRF-65		XRF-66		XRF-67		XRF-68		XRF-69		XRF-70		XRF-71		XRF-72		XRF-73		XRF-1A		XRF-2A		XRF-3A		XRF-4A		XRF-5A					
Matrix :				Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil					
Units :				mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg					
Date Sampled :				4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		4/12/2005		6/21/2005		6/21/2005		6/21/2005		6/21/2005		6/21/2005					
Time Sampled :				16:04		16:37		16:48		16:55		16:58		17:01		17:04		17:08		17:11		17:15															
ANALYTE (Background mg/kg)	Ingestion (mg/kg)	Inhalation (mg/kg)	ADL (mg/kg)	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag				
ALUMINUM (9,200)	---	---	---	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS				
ANTIMONY (3.3)	31	---	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS				
ARSENIC (11.3)	---	750	*	128.5		LOD	<	LOD	<	35.6		29		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	48.4		39		43.4		105.1				
BARIUM (122)	5500	690,000	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS				
BERYLLIUM (0.56)	160	1,300	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS				
CADMIUM (0.50)	78	1,800	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS				
CALCIUM (5,525)	---	---	---	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS				
CHROMIUM (13.0)	230	270	*	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<			
COBALT (8.9)	4700	---	*	958.4		LOD	<	LOD	<	LOD	<	430.4		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	NS		NS		NS		NS		NS				
COPPER (12.0)	2900	---	*	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<			
IRON (15,000)	---	---	*	53862.4		15692.8		14592		8588.8		13388.8		11097.6		15193.6		15091.2		15590.4		25689.6		19993.6		27392		29798.4		15590.4		27980.8				
LEAD (20.9)	400	---	*	[redacted]		40.2		[redacted]		LOD	<	61.1		48.7		77		55.1		45.2		148.1		81.5		114.7		93.8		128		348.8				
MAGNESIUM (2,700)	---	---	---	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS				
MANGANESE (630)	3,700	69,000	*	LOD	<	LOD	<	490.8		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	NS		NS		NS		NS		NS				
MERCURY (0.05)	23	10	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS				
NICKEL (13.0)	1,600	13,000	---	LOD	<	LOD	<	LOD	<	347.8		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<			
POTASSIUM (1,100)	---	---	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS				
SELENIUM (0.37)	390	---	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS				
SILVER (0.50)	390	---	---	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS				
SODIUM (130)	---	---	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS				
THALLIUM (0.4)	6.3	---	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS				
VANADIUM (25.0)	550	---	*	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS				
ZINC (60.2)	23,000	---	*	1620		LOD	<	356.4		LOD	<	105		LOD	<	212		95.5		106.8		1129.6		305.2		451.6		474		325.2		520				
CYANIDE (0.50)	1600	---	---	NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS		NS				

Table 2
XRF Screening Results
CMC Property
Freeport, Illinois

	Sampling Location :			XRF-6A		XRF-7A		XRF-8A		XRF-9A		XRF-10A		XRF-11A	
	Matrix :			Soil		Soil		Soil		Soil		Soil		Soil	
	Units :			mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
	Date Sampled :			6/21/2005		6/21/2005		6/21/2005		6/21/2005		6/21/2005		6/21/2005	
	Time Sampled :														
	Exposure Route-specific Values for Soils														
ANALYTE (Background mg/kg)	Ingestion (mg/kg)	Inhalation (mg/kg)	ADL (mg/kg)	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM (9,200)	---	---	---	NS		NS		NS		NS		NS		NS	
ANTIMONY (3.3)	31	---	*	NS		NS		NS		NS		NS		NS	
ARSENIC (11.3)	---	750	*	LOD	<	LOD	<	LOD	<	LOD	<	148.4		514.4	
BARIUM (122)	5500	690,000	*	NS		NS		NS		NS		NS		NS	
BERYLLIUM (0.56)	160	1,300	*	NS		NS		NS		NS		NS		NS	
CADMIUM (0.50)	78	1,800	*	NS		NS		NS		NS		NS		NS	
CALCIUM (5,525)	---	---	---	NS		NS		NS		NS		NS		NS	
CHROMIUM (13.0)	230	270	*	[redacted]		LOD	<	LOD	<	LOD	<	LOD	<	LOD	<
COBALT (8.9)	4700	---	*	NS		NS		NS		NS		NS		NS	
COPPER (12.0)	2900	---	*	1249.6		LOD	<	LOD	<	LOD	<	LOD	<	498	
IRON (15,000)	---	---	*	46182.4		12198.4		8505.6		9568		77772.8		27596.8	
LEAD (20.9)	400	---	*	[redacted]		32.1		31.5		65.6		[redacted]		[redacted]	
MAGNESIUM (2,700)	---	---	---	NS		NS		NS		NS		NS		NS	
MANGANESE (630)	3,700	69,000	*	NS		NS		NS		NS		NS		NS	
MERCURY (0.05)	*23*	*10*	*	*NS*		*NS*		*NS*		*NS*		*NS*		*NS*	
NICKEL (13.0)	1,600	13,000	---	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<	LOD	<
POTASSIUM (1,100)	---	---	*	NS		NS		NS		NS		NS		NS	
SELENIUM (0.37)	390	---	*	NS		NS		NS		NS		NS		NS	
SILVER (0.50)	390	---	---	NS		NS		NS		NS		NS		NS	
SODIUM (130)	---	---	*	NS		NS		NS		NS		NS		NS	
THALLIUM (0.4)	6.3	---	*	NS		NS		NS		NS		NS		NS	
VANADIUM (25.0)	550	---	*	NS		NS		NS		NS		NS		NS	
ZINC (60.2)	23,000	---	*	2649.6		136.1		107.4		207.8		1800		5747.2	
CYANIDE (0.50)	1600	---	---	NS		NS		NS		NS		NS		NS	

[redacted]

Table 3 Soil Analytical Results
Semivolatile Organic Compounds
CMC Property
Freeport, Illinois

				Sample Number	E00A0		E00A1		E00A2		E00A3		E00A4		E00A5		E00A6		E00A7		E00A8		E00A9		E00B0		E00B1		E00B2		E00B3		E00B4		E00B5	
				Sampling Location	B19A		B2A		B2B		B3A		B3B		B5A		B6A		B7A		B4A		B4B		B9A		B9B		B8A		B8B		B10B		B10A	
				Matrix	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
				Units	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
				Date Sampled	04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003		04/29/2003	
				Time Sampled	10 25		11 05		11 10		12 00		12 10		12 35		13 40		16 00		16 10		16 10		16 35		16 40		17 00		17 05		17 30		17 25	
				Depth of Sample	3 ft		12 ft		19 ft		3 ft		13 ft		11 ft		8-10 ft		10-12 ft		0-2 ft		0-2 ft		0-2 ft		8-8 ft		0-2 ft		16-20 ft		16-20 ft		0-2 ft	
	Exposure Route-Specific Values		Soil Compone t of the Groundwater Ingestion Exposure Route																																	
Semivolatile Compound	Ingestion (ug/kg)	Inhalation (ug/kg)	Class I (ug/kg)	Class II (ug/kg)	ADL (mg/kg)	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
BENZALDEHYDE	—	—	—	—	—	400	U	430	U	2100	U	84	J	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
PHENOL	47,000,000	—	100,000	100,000	*	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
BIS-(2-CHLOROETHYL)ETHER	600	200	0 4	0 4	660	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U
2-CHLOROPHENOL	390,000	53,000,000	4,000	4,000	—	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
2-METHYLPHENOL	3,900,000	—	15,000	15,000	15,000	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
2,2'-OXYBIS(1- CHLOROPROPANE)	—	—	—	—	—	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
ACETOPHENONE	—	—	—	—	—	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
4-METHYLPHENOL	—	—	—	—	—	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
N-NITROSO-DI-N PROPYLAMINE	90	—	0 05	0 05	1 8	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U
HEXACHLOROETHANE	78,000	—	500	2,800	*	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U
NITROBENZENE	39 000	92,000	100	100	260	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U
ISOPHORONE	15,600 000	4 600,000	8,000	8,000	*	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U
2-NITROPHENOL	—	—	—	—	—	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
2,4-DIMETHYLPHENOL	1,600,000	—	9,000	9,000	—	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
BIS(2-CHLOROETHOXY)METHANE	—	—	—	—	—	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
2,4-DICHLOROPHENOL	230 000	—	1 000	1,000	—	400	U	430	U	[redacted]	U	380	U	420	U	[redacted]	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	[redacted]	U	440	U	[redacted]	U
NAPHTHALENE	1 600,000	170 000	12 000	18 000	*	400	U	620		2200		91	J	420	U	2100	U	400	U	430	U	350	U	80	J	810	U	410	U	360	U	4600	J	470		1600	J
4-CHLOROANILINE	310,000	—	700	700	*	400	U	430	U	2100	U	390	U	420	U	[redacted]	U	400	U	430	U	350	U	[redacted]	U	810	U	410	U	360	U	[redacted]	U	440	U	[redacted]	U
HEXACHLOROBUTADIENE	—	—	—	—	—	400	U	430	U	2100	U	390	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
CAPROLACTAM	—	—	—	—	—	400	U	430	U	2100	U	390	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
4-CHLORO-3-METHYLPHENOL	—	—	—	—	—	400	U	430	U	2100	U	390	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
2-METHYLNAPHTHALENE	—	—	—	—	—	400	U	320	J	7700		120	J	420	U	2100	U	400	U	430	U	46	J	260	J	110	J	410	U	360	U	28000		870		3600	J
HEXACHLOROCYCLO-PENTADIENE	560,000	10,000	400,000	2,200,000	*	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
2,4,6-TRICHLOROPHENOL	58,000	200,000	200	770	660	400	U	430	U	[redacted]	U	380	U	420	U	[redacted]	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	[redacted]	U	440	U	[redacted]	U
2,4,5-TRICHLOROPHENOL	7,800,000	—	270,000	1,400,000	*	1000	U	1100	U	5300	U	980	U	1000	U	5200	U	1000	U	1100	U	880	U	1800	U	2000	U	1000	U	910	U	22000	U	1100	U	12000	U
1,1'-BIPHENYL	—	—	—	—	—	400	U	430	U	330	J	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	3200	J	110	J	4600	U
2-CHLORONAPHTHALENE	—	—	—	—	—	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
2-NITROANILINE	—	—	—	—	—	1000	U	1100	U	5300	U	980	U	1000	U	5200	U	1000	U	1100	U	880	U	1800	U	2000	U	1000	U	910	U	22000	U	1100	U	12000	U
DIMETHYLPHTHALATE	—	—	—	—	—	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
2,6-DINITROTOLUENE	900	—	0 7	0 7	280	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U
ACENAPHTHYLENE	—	—	—	—	—	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
3-NITROANILINE	—	—	—	—	—	1000	U	1100	U	5300	U	980	U	1000	U	5200	U	1000	U	1100	U	880	U	1800	U	2000	U	1000	U	910	U	22000	U	1100	U	12000	U
ACENAPHTHENE	4,700,000	—	570,000	2,900,000	*	400	U	430	U	480	J	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	53	J	4600	U
2,4-DINITROPHENOL	1,600,000	—	200	200	*	1000	U	1100	U	5300	U	980	U	1000	U	5200	U	1000	U	1100	U	880	U	1800	U	2000	U	1000	U	910	U	22000	U	1100	U	12000	U
4-NITROPHENOL	—	—	—	—	—	1000	U	1100	U	5300	U	980	U	1000	U	5200	U	1000	U	1100	U	880	U	1800	U	2000	U	1000	U	910	U	22000	U	1100	U	12000	U
DIBENZOFURAN	—	—	—	—	—	400	U	430	U	460	J	380	U	420	U	2100	U	400	U	430	U	350	U	100	J	810	U	410	U	360	U	1900	J	73	J	1100	J
2,4-DINITROTOLUENE	900	—	0 8	0 8	250	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U
DIETHYLPHTHALATE	63,000,000	2,000,000	470,000	470,000	*	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
FLUORENE	3,100,000	—	4,300,000	21,000,000	*	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	2600	J	120	J	4600	U
4-CHLOROPHENYL-PHENYL ETHER	—	—	—	—	—	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
4-NITROANILINE	—	—	—	—	—	1000	U	1100	U	5300	U	980	U	1000	U	5200	U	1000	U	1100	U	880	U	1800	U	2000	U	1000	U	910	U	22000	U	1100	U	12000	U
4,6-DINITRO-2-METHYLPHENOL	—	—	—	—	—	1000	U	1100	U	5300	U	980	U	1000	U	5200	U	1000	U	1100	U	880	U	1800	U	2000	U	1000	U	910	U	22000	U	1100	U	12000	U
N-NITROSO DIPHENYLAMINE	130,000	—	1,000	5,800	—	400	U	430	U	[redacted]	U	380	U	420	U	[redacted]	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	[redacted]	U	440	U	[redacted]	U
4-BROMOPHENYL-PHENYLETHER	—	—	—	—	—	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
HEXACHLOROBENZENE	400	1,000	2,000	11,000	—	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	350	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U
ATRAZINE	2,700,000	—	88	330	NA	[redacted]	W	[redacted]	W	[redacted]	W	[redacted]	W	[redacted]	W	[redacted]	W	[redacted]	W	[redacted]	W	[redacted]	W	[redacted]	W	[redacted]	W	[redacted]	W	[redacted]	W	[redacted]	W	[redacted]	W	[redacted]	W
PENTACHLOROPHENOL	3 000	—	30	140	*	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U
PHENANTHRENE	—	—	—	—	—	400	U	190	J	1400	J	180	J	420	U	2100	U	400	U	430	U	76	J	440	J	180	J	410	U	360	U	7300	J	250	J	4200	J
ANTHRACENE	23,000,000	—	12,000,000	59,000,000	*	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
CARBAZOLE	32,000	—	800	2,800	NA	400	U	430	U	[redacted]	U	380	U	420	U	[redacted]	U	400	U	430	U	350	U	[redacted]	U	[redacted]	U	410	U	360	U	[redacted]	U	440	U	[redacted]	U
DI-N-BUTYLPHTHALATE	7,800,000	2,300,000	2,300,000	2,300,000	*	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
FLUORANTHENE	3,100,000	—	4,300,000	21,000,000	*	400	U	430	U	2100	U	170	J	420	U	2100	U	400	U	430	U	30	J	180	J	810	U	410	U	360	U	8600	U	440	U	1400	J
PYRENE	2,300,000	—	4,200,000	21,000,000	*	400	U	430	U	2100	U	170	J	420	U	2100	U	400	U	430	U	45	J	170	J	810	U	410	U	360	U	8600	U	440	U	1000	J
BUTYLBENZYLPHTHALATE	16,000,000	930,000	930,000	930,000	*	400	U	430	U	2100	U	380	U	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
3,3'-DICHLOROBENZIDINE	1,000	—	7	33	1,300	400	U	430	U	[redacted]	U	380	U	420	U	[redacted]	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	[redacted]	U	440	U	[redacted]	U
BENZO(A)ANTHRACENE	900	—	2,000	8,000	*	400	U	430	U	2100	U	97	J	420	U	2100	U	400	U	430	U	47	J	95	J	810	U	410	U	360	U	8600	U	440	U	580	J
CHRYSENE	88,000	—	160,000	800,000	*	400	U	430	U	2100	U	140	J	420	U	2100	U	400	U	430	U	67	J	130	J	810	U	410	U	360	U	8600*	U	440	U	840	J
BIS(2-ETHYLHEXYL)PHTHALATE	46,000	31,000,000	3,800,000	31,000,000	*	400	W	430	W	2100	W	380	W	420	W	2100	W	400	W	430	W	350	W	730	W	810	W	410	W	360	W	8600	W	440	W	4600	W
DI-N-OCTYLPHTHALATE	—	—	—	—	—	400	W	430	W	2100	W	380	W	420	W	2100	W	400	W	430	W	350	W	730	W	810	W	410	W	360	W	8600	W	440	W	4600	W
BENZO(B)FLUORANTHENE	900	—	5,000	25,000	*	400	U	430	U	2100	U	110	J	420	U	2100	U	400	U	430	U	45	J	100	J	810	U	410	U	360	U	8600	U	440	U	4600	U
BENZO(K)FLUORANTHENE	9,000	—	49,000	250,000	*	400	U	430	U	2100	U	100	J	420	U	2100	U	400	U	430	U	350	U	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
BENZO(A)PYRENE	90	—	8,000	82,000	*	400	U	430	U	2100	U	100	J	420	U	2100	U	400	U	430	U	37	J	93	J	810	U	410	U	360	U	8600	U	440	U	4600	U
INDENO(1,2,3-CD)-PYRENE	900	—	14,000	69,000	*	400	U	430	U	2100	U	82	J	420	U	2100	U	400	U	430	U	41	J	140	J	810	U	410	U	360	U	8600	U	440	U	4600	U
DIBENZO(A,H)-ANTHRACENE	90	—	2,000	7,800	*	400	U	430	U	2100	U	390	U	420	U	2100	U	400	U	430	U	41	J	730	U	810	U	410	U	360	U	8600	U	440	U	4600	U
BENZO(G,H,I)PERYLENE	—	—	—	—	—	400	U	430	U	2100	U	99	J	420	U	2100	U	400	U	430	U	62	J	210	J	810	U	410	U	360	U	8600	U	440	U	4600	U

Table 3 Soil Analytical Results
Semivolatile Organic Compounds
CMC Property
Freeport, Illinois

						Sample Number	E00B7		E00B8		E00B9		E00B6		E00C0		E00C1		E00C2		E00C3		E00C4		E00C5		E00C6		E00C9		E00D0		S-2	
						Sampling Location	B11A		B12A		B12B		B1A		B13A		B14A		B15A		B16A		B17B		B17A		S1		B15A		B18B		Soil	
						Matrix	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
						Units	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
						Date Sampled	04/30/2003		04/30/2003		04/30/2003		04/29/2003		04/30/2003		04/30/2003		04/30/2003		04/30/2003		04/30/2003		04/30/2003		04/30/2003		04/30/2003		04/30/2003		7/7/2005	
						Time Sampled	10 15		10 45		10 50		10 10		11 05		11 30		11 45		12 00		14 15		14 00		14 30		15 00		15 05		1430	
						Depth of Sample	2-3 ft		1-3 ft		6-8 ft		16 ft		0-2 ft		2-3 ft		14-16 ft		2-8 ft		14-16 ft		2-4 ft		Surface		3 ft		17-19 ft		Surface	
	Exposure Route-Specific Values		Soil Component of the Groundwater Ingestion Exposure Route																															
Semivolatile Compound	Ingestion (ug/kg)	Inhalation (ug/kg)	Class I (ug/kg)	Class II (ug/kg)	ADL (mg/kg)		Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
BENZALDEHYDE	---	---	---	---	---		87	J	390	UJ	430	UJ	440	UJ	2100	UJ	4100	UJ	420	UJ	2200	UJ	410	U	2000	UJ	380000	U	2200	UJ	430	UJ	NS	
PHENOL	47,000,000	---	100,000	100,000	*		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
BIS-(2-CHLOROETHYL)ETHER	600	200	0 4	0 4	660		[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	UJ	[redacted]	U	[redacted]	UJ	[redacted]	U	[redacted]	U	NS	
2-CHLOROPHENOL	390,000	53,000,000	4,000	4,000	---		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	[redacted]	U	2200	U	430	U	NS	
2-METHYLPHENOL	3,900,000	---	15,000	15,000	15,000		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	[redacted]	U	2200	U	430	U	NS	
2,2'-OXYBIS(1- CHLOROPROPANE)	---	---	---	---	---		410	UJ	390	UJ	430	UJ	440	U	2100	UJ	4100	UJ	420	UJ	2200	UJ	410	UJ	2000	UJ	380000	UJ	2200	UJ	430	UJ	NS	
ACETOPHENONE	---	---	---	---	---		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
4-METHYLPHENOL	---	---	---	---	---		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
N-NITROSO-DI-N PROPYLAMINE	90	---	0 05	0 05	1 8		[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	UJ	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	NS	
HEXACHLOROETHANE	78,000	---	500	2,800	*		410	U	390	U	430	U	440	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	UJ	[redacted]	U	[redacted]	U	[redacted]	U	430	U	NS	
NITROBENZENE	39 000	92,000	100	100	280		[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	NS	
ISOPHORONE	15,600,000	4,600,000	8,000	8,000	*		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
2-NITROPHENOL	---	---	---	---	---		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
2,4-DIMETHYLPHENOL	1,600,000	---	9 000	9,000	---		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
BIS(2-CHLOROETHOXY)METHANE	---	---	---	---	---		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
2,4-DICHLOROPHENOL	230,000	---	1 000	1,000	---		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
NAPHTHALENE	1 800,000	170,000	12 000	16,000	*		220	J	100	J	430	U	440	U	2100	U	600	J	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	89	U
4-CHLOROANILINE	310,000	---	700	700	*		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
HEXACHLOROBUTADIENE	---	---	---	---	---		410	UJ	390	UJ	430	UJ	440	UJ	2100	UJ	4100	UJ	420	UJ	2200	UJ	410	U	2000	UJ	380000	U	2200	UJ	430	UJ	NS	
CAPROLACTAM	---	---	---	---	---		410	U	390	U	430	U	440	U	2100	R	4100	R	420	R	2200	R	410	U	2000	R	380000	U	2200	R	430	R	NS	
4-CHLORO-3-METHYLPHENOL	---	---	---	---	---		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
2-METHYLNAPHTHALENE	---	---	---	---	---		250	J	270	J	430	U	440	U	360	J	1300	J	420	U	410	J	410	U	2000	U	380000	U	260	J	430	U	NS	
HEXACHLORODICYCLO-PENTADIENE	580,000	10,000	400,000	2,200,000	*		410	U	390	U	430	U	440	UJ	2100	UJ	4100	UJ	420	U	2200	UJ	410	U	2000	UJ	380000	U	2200	UJ	430	UJ	NS	
2,4,6-TRICHLOROPHENOL	66,000	200,000	200	770	660		[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	NS	
2,4,5-TRICHLOROPHENOL	7,800,000	---	270,000	1,400,000	*		1000	U	970	U	1100	U	1100	U	5300	U	10000	U	1100	U	5600	U	1000	U	4900	U	950000	U	5600	U	1100	U	NS	
1,1'-BIPHENYL	---	---	---	---	---		44	J	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
2-CHLORONAPHTHALENE	---	---	---	---	---		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
2-NITROANILINE	---	---	---	---	---		1000	U	970	U	1100	U	1100	U	5300	U	10000	U	1100	U	5600	U	1000	U	4900	U	950000	U	5600	U	1100	U	NS	
DIMETHYLPHTHALATE	---	---	---	---	---		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
2,6-DINITROTOLUENE	900	---	0 7	0 7	280		[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	NS	
ACENAPHTHYLENE	---	---	---	---	---		82	J	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	89	U
3-NITROANILINE	---	---	---	---	---		1000	UJ	970	UJ	1100	UJ	1100	UJ	5300	U	10000	U	1100	U	5600	U	1000	U	4900	U	950000	U	5600	U	1100	U	NS	
ACENAPHTHENE	4,700,000	---	570,000	2,900,000	*		63	J	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
2,4-DINITROPHENOL	1,600,000	---	200	200	*		[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	J	[redacted]	U	[redacted]	UJ	[redacted]	UJ	[redacted]	UJ	[redacted]	UJ	[redacted]	UJ	[redacted]	UJ	[redacted]	UJ	[redacted]	UJ	89	U
4-NITROPHENOL	---	---	---	---	---		1000	U	970	U	1100	U	1100	U	5300	U	10000	U	1100	U	5600	U	1000	U	4900	U	950000	U	5600	U	1100	U	NS	
DIBENZOFURAN	---	---	---	---	---		190	J	73	J	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
2,4-DINITROTOLUENE	900	---	0 8	0 8	250		[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	UJ	[redacted]	U	[redacted]	U	NS	
DIETHYLPHTHALATE	63,000,000	2,000,000	470,000	470,000	*		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
FLUORENE	3,100,000	---	4,300,000	21,000,000	*		180	J	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	89	U
4-CHLOROPHENYL-PHENYL ETHER	---	---	---	---	---		410	U	390	U	430	U	440	UJ	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
4-NITROANILINE	---	---	---	---	---		1000	UJ	970	UJ	1100	UJ	1100	UJ	5300	UJ	10000	UJ	1100	U	5600	UJ	1000	UJ	450	J	950000	UJ	270	J	1100	UJ	NS	
4,6-DINITRO-2-METHYLPHENOL	---	---	---	---	---		1000	U	970	U	1100	U	1100	U	5300	UJ	10000	UJ	1100	U	5600	UJ	1000	U	4900	UJ	950000	U	5600	UJ	1100	UJ	NS	
N-NITROSO DIPHENYLAMINE	130,000	---	1,000	5,600	---		410	U	390	U	430	U	440	U	[redacted]	U	[redacted]	U	420	U	[redacted]	U	410	U	[redacted]	U	[redacted]	U	[redacted]	U	430	U	NS	
4-BROMOPHENYL-PHENYLETHER	---	---	---	---	---		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
HEXACHLOROBENZENE	400	1,000	2,000	11,000	---		[redacted]	U	390	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	NS	
ATRAZINE	2,700,000	---	66	330	NA		[redacted]	UJ	[redacted]	UJ	[redacted]	UJ	[redacted]	UJ	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	UJ	[redacted]	U	[redacted]	UJ	[redacted]	U	[redacted]	U	NS	
PENTACHLOROPHENOL	3,000	---	30	140	*		[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	J	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	NS	
PHENANTHRENE	---	---	---	---	---		1300		330	J	430	U	53	J	830	J	940	J	420	U	1500	J	410	U	1200	J	380000	U	840	J	430	U	130	
ANTHRACENE	23,000,000	---	12,000,000	59,000,000	*		250	J	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	230	J	380000	U	2200	U	430	U	89	U
CARBAZOLE	32,000	---	600	2,800	NA		82	J	390	U	430	U	440	U	[redacted]	U	[redacted]	U	420	U	[redacted]	U	410	U	[redacted]	U	[redacted]	U	[redacted]	U	430	U	NS	
DI-N-BUTYLPHTHALATE	7,800,000	2,300,000	2,300,000	2,300,000	*		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	250	J	410	U	210	J	380000	U	2200	U	430	U	NS	
FLUORANTHENE	3,100,000	---	4,300,000	21,000,000	*		770		150	J	430	U	440	U	400	J	4100	U	420	U	1700	J	410	U	2300		380000	U	820	J	430	U	700	
PYRENE	2,300,000	---	4,200,000	21,000,000	*		1000		170	J	430	U	440	U	370	J	4100	U	420	U	1800	J	410	U	2900		380000	UJ	980	J	430	U	570	
BUTYLBENZYLPHTHALATE	16,000,000	930,000	930,000	930,000	*		410	U	390	U	430	U	440	UJ	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
3,3'-DICHLOROBENZIDINE	1,000	---	7	33	1,300		[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	NS	
BENZO(A)ANTHRACENE	900	---	2,000	8,000	*		410		74	J	430	U	440	U	[redacted]	U	[redacted]	U	420	U	730	J	410	U	[redacted]		[redacted]	U	430	J	430	U	110	
CHRYSENE	88,000	---	160,000	800,000	*		390	J	100	J	430	U	440	U	270	J	4100	U	420	U	840	J	410	U	2200		380000	U	810	J	430	U	89	
BIS(2-ETHYLHEXYL)PHTHALATE	46,000	31,000,000	3,600,000	31,000,000	*		470		390	UJ	430	UJ	440	UJ	2100	U	4100	U	420	UJ	2200	UJ	410	UJ	2000	UJ	380000	U	2200	UJ	430	UJ	NS	
DI-N-OCTYLPHTHALATE	---	---	---	---	---		410	U	390	U	430	U	54	J	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	NS	
BENZO(B)FLUORANTHENE	900	---	5,000	25,000	*		190	J	91	J	430	U	440	U	[redacted]	U	[redacted]	U	420	U	670	J	410	U	[redacted]		[redacted]	U	[redacted]	U	[redacted]	U	160	
BENZO(K)FLUORANTHENE	9,000	---	49,000	250,000	*		300	J	57	J	430	U	440	U	2100	U	4100	U	420	U	700	J	410	U	2300		[redacted]	U	2200	U	430	U	4 5	U
BENZO(A)PYRENE	90	---	8,000	82,000	*		[redacted]	J	57	J	[redacted]	U	[redacted]	U	[redacted]	U	[redacted]	U	420	U	[redacted]	J	[redacted]	U	[redacted]	J	[redacted]	U	[redacted]	U	[redacted]	U	8 9	U
INDENO(1,2,3-CD)-PYRENE	900	---	14,000	88,000	*		120	J	61	J	430	U	440	U	[redacted]	U	[redacted]	U	420	U	400	J	410	U	[redacted]	J	[redacted]	U	[redacted]	U	[redacted]	U	8 9	U
DIBENZO(A,H)-ANTHRACENE	90	---	2,000	7,800	*		410	U	390	U	430	U	440	U	2100	U	4100	U	420	U	2200	U	410	U	2000	U	380000	U	2200	U	430	U	8 9	U
BENZO(G,H,I)PERYLENE	---	---	---	---	---		140	J	92	J	430	U	440	U	2100	U	4100	U	420	U	480	J	410	U	1800	J	380000	U	2200	U	430	U	8 9	U

Table 4. Groundwater Analytical Results
Inorganic Compounds
CMC Property
Freeport, Illinois

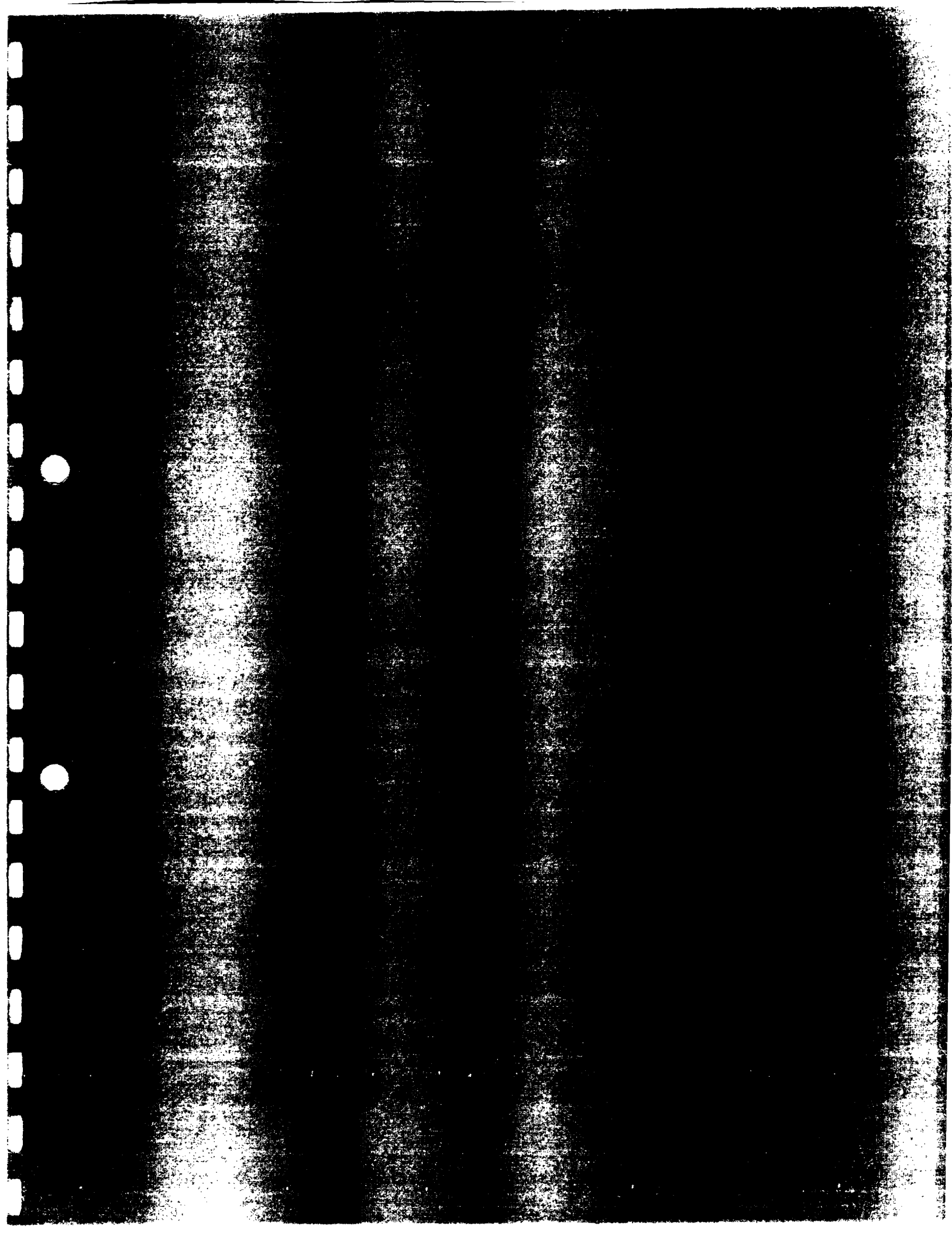
	Sample Number :		ME00D4		ME00D5		ME00D6		ME00D7		ME00D8		ME00D9	
	Sampling Location :		MW1		MW2		MW3		MW4		MW5		MW6	
	Matrix :		Water		Water		Water		Water		Water		Water	
	Units :		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
	Date Sampled :		06/10/2003		06/10/2003		06/10/2003		06/10/2003		06/10/2003		06/10/2003	
	Time Sampled :		13:55		12:15		14:35		15:05		11:40		10:45	
ANALYTE	Class I (ug/L)	Class II (ug/L)	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	----	----	251		308		897		2610		6660		193	
ANTIMONY	6	24												
ARSENIC	50	200	15.0	U	15.0	U	18.2		15.0	U	407		15.0	U
BARIUM	2000	2000	162		90.1		161		154		652		93.5	
BERYLLIUM	4	500												
CADMIUM	5	50	0.42		5.0	U	0.84		1.7		1.4		5.0	U
CALCIUM	----	----	164000		84200		167000		121000		72200		91700	
CHROMIUM	100	1000	1.7		1.2		3.7		13.7		13.8		0.90	
COBALT	1000	1000	50.0	U	1.6		10.3		9.6		18.5		50.0	U
COPPER	650	650	4.2		5.6		16.8		19.6		11.7		3.7	
IRON	5000	5000			603									
LEAD	7.5	100												
MAGNESIUM	----	----	53900		48000		61700		43500		59700		40900	
MANGANESE	150	10000												
MERCURY	2	10	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
NICKEL	100	2000	40.0	U	40.0	U	5.0		14.6		17.3		40.0	U
POTASSIUM	----	----	776		2130		8220		3320		1490		639	
SELENIUM	50	50	35.0	U	35.0	U	35.0	U	35.0	U	35.0	U	35.0	U
SILVER	50	----	0.99		0.75		0.98		0.74		10.0	U	10.0	U
SODIUM	----	----	16200		49300		41000		25100		32300		42000	
THALLIUM	2	20												
VANADIUM	49	100	11.5		11.9		22.6		16.4		36.5		9.6	
ZINC	5000	10000	60.0	U	60.0	U	70.1		65.0		42.7		60.0	U
CYANIDE	200	600	10.0	U	10.0	U	35.2		10.0	U	10.0	U	10.0	U

Table 5 – Summary of Groundwater Modeling

Target Compounds	Groundwater Source Location	Groundwater Source Concentration	Modeled Distance from Source to Tier 1 Remediation Objective
Lead	MW-3	21.7 ul/L	120
Manganese	MW-4	16200 ug/L	815

Table 6 – Summary of the Soil Exposure Routes

	Soil Exposure Route		Soil Component of the Groundwater Ingestion Exposure Route		
Target Compounds	Ingestion (mg/kg)	Inhalation (mg/kg)	Class I (mg/kg)	Class II (mg/kg)	ADL
Copper	X				
Lead	X		X	X	
Manganese	X	X			
Nickel	X				
Zinc	X				



APPENDIX A

ANALYTICAL RESULTS

PDC Laboratories, Inc.
P.O. Box 9071 • Peoria, IL 61612-9071
(309) 692-9688 • (800) 752-6651 • FAX (309) 692-9689

ACCREDITED IN ACCORDANCE WITH nelac

Laboratory Results

Fehr-Graham & Associates
221 E. Main St. #200

Freeport, IL 61032
Attn : Mr. Chris Posey

Date Received : 07/11/05 09:00
Report Date 07/27/05
Customer # : 206007
P.O. Number :
Facility : FREEPORT OFFICE

Sample No: **05071859-1** Collect Date : **07/07/05 14:55**
Client ID : **PROJECT#45399** Site : **19563 S-2** Locator : **FILL**

Parameter	Qualifier	Result	Analysis Date	Analyst
SM2540B				
Moisture		24.4 %	07/22/05 07:51	MH/KD
-846 1311				
Final pH		5.66	07/12/05 11:30	JMM
Leachate Preparation			07/12/05 11:30	JMM
SW-846 3015				
Sample Preparation			07/13/05 05:00	JMM
SW-846 3051				
Sample Preparation			07/13/05 07:00	JEM
SW1312				
Sample Preparation			07/13/05 11:50	JMM
SW6010B				
Arsenic		28 mg/kg	07/14/05 07:38	JMW
Arsenic		37 mg/kg Dry	07/14/05 07:38	JMW
Barium		320 mg/kg	07/14/05 07:38	JMW
Barium		420 mg/kg Dry	07/14/05 07:38	JMW
Cadmium		2.1 mg/kg	07/14/05 07:38	JMW
Cadmium		2.8 mg/kg Dry	07/14/05 07:38	JMW
Chromium		120 mg/kg	07/14/05 07:38	JMW
Chromium		160 mg/kg Dry	07/14/05 07:38	JMW
Lead		15000 mg/kg	07/14/05 07:38	JMW
Lead		20000 mg/kg Dry	07/14/05 07:38	JMW
Selenium	J	15 mg/kg	07/14/05 07:38	JMW
Selenium	J	20 mg/kg Dry	07/14/05 07:38	JMW
Silver	J	7.9 mg/kg	07/14/05 07:38	JMW
Silver	J	10 mg/kg Dry	07/14/05 07:38	JMW
SW6010B SPLP				
Arsenic, SPLP	U	0.05 mg/l	07/14/05 11:13	JMW
Barium, SPLP	J	0.3 mg/l	07/14/05 11:13	JMW
Cadmium, SPLP	U	0.002 mg/l	07/14/05 11:13	JMW
Chromium, SPLP		0.018 mg/l	07/14/05 11:13	JMW
Lead, SPLP		0.79 mg/l	07/14/05 11:13	JMW
Selenium, SPLP	U	0.02 mg/l	07/14/05 11:13	JMW
Silver, SPLP	U	0.01 mg/l	07/14/05 11:13	JMW
SW6010B TCLP				
Arsenic, TCLP	U	0.05 mg/l	07/14/05 09:51	JMW
Barium, TCLP	J	0.97 mg/l	07/14/05 09:51	JMW
Cadmium, TCLP		0.014 mg/l	07/14/05 09:51	JMW

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221 E. Main St. #200

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Date Received : 07/11/05 09:00
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Facility : FREEPORT OFFICE

Sample No: **05071859-1** Collect Date : **07/07/05 14:55**
Client ID : **PROJECT#45399** Site : **19563 S-2** Locator : **FILL**

Parameter	Qualifier	Result	Analysis Date	Analyst
SW6010B TCLP				
Chromium, TCLP	J	0.0011 mg/l	07/14/05 09:51	JMW
Lead, TCLP		10 mg/l	07/14/05 09:51	JMW
Selenium, TCLP	U	0.02 mg/l	07/14/05 09:51	JMW
Silver, TCLP	U	0.01 mg/l	07/14/05 09:51	JMW
SW7470 SPLP				
Mercury, SPLP	U	0.06 mg/l	07/22/05 13:20	NJS
SW7470 TCLP				
Mercury, TCLP	U	0.2 mg/l	07/22/05 13:14	NJS
SW7471				
Sample Preparation			07/14/05 13:30	NJS
SW7471				
Mercury		0.35 mg/kg	07/15/05 09:31	JVH
Mercury		0.46 mg/kg Dry	07/15/05 09:31	JVH
SW8310				
Sample Preparation			07/20/05 01:45	CP,EMS
8310				
Acenaphthene	U	67 ug/kg	07/21/05 15:52	BL
Acenaphthene	U	89 ug/kg Dry	07/21/05 15:52	BL
Acenaphthylene	U	67 ug/kg	07/21/05 15:52	BL
Acenaphthylene	U	89 ug/kg Dry	07/21/05 15:52	BL
Anthracene	U	67 ug/kg	07/21/05 15:52	BL
Anthracene	U	89 ug/kg Dry	07/21/05 15:52	BL
Benzo(a)Anthracene		82 ug/kg	07/21/05 15:52	BL
Benzo(a)Anthracene		110 ug/kg Dry	07/21/05 15:52	BL
Benzo(a)Pyrene	U	6.7 ug/kg	07/21/05 15:52	BL
Benzo(a)Pyrene	U	8.9 ug/kg Dry	07/21/05 15:52	BL
Benzo(b)Fluoranthene		120 ug/kg	07/21/05 15:52	BL
Benzo(b)Fluoranthene		160 ug/kg Dry	07/21/05 15:52	BL
Benzo(g,h,i)Perylene	U	6.7 ug/kg	07/21/05 15:52	BL
Benzo(g,h,i)Perylene	U	8.9 ug/kg Dry	07/21/05 15:52	BL
Benzo(k)Fluoranthene	U	3.4 ug/kg	07/21/05 15:52	BL
Benzo(k)Fluoranthene	U	4.5 ug/kg Dry	07/21/05 15:52	BL
Chrysene		67 ug/kg	07/21/05 15:52	BL
Chrysene		89 ug/kg Dry	07/21/05 15:52	BL
Dibenz(a,h)Anthracene	U	6.7 ug/kg	07/21/05 15:52	BL
Dibenz(a,h)Anthracene	U	8.9 ug/kg Dry	07/21/05 15:52	BL
Fluoranthene		530 ug/kg	07/21/05 15:52	BL
Fluoranthene		700 ug/kg Dry	07/21/05 15:52	BL

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Parameter	Qualifier	Result	Analysis Date	Analyst
SW8310				
Fluorene	U	67 ug/kg	07/21/05 15:52	BL
orene	U	89 ug/kg Dry	07/21/05 15:52	BL
Indeno(1,2,3-cd)Pyrene	U	6.7 ug/kg	07/21/05 15:52	BL
Indeno(1,2,3-cd)Pyrene	U	8.9 ug/kg Dry	07/21/05 15:52	BL
Naphthalene	U	67 ug/kg	07/21/05 15:52	BL
Naphthalene	U	89 ug/kg Dry	07/21/05 15:52	BL
Phenanthrene		99 ug/kg	07/21/05 15:52	BL
Phenanthrene		130 ug/kg Dry	07/21/05 15:52	BL
Pyrene		430 ug/kg	07/21/05 15:52	BL
Pyrene		570 ug/kg Dry	07/21/05 15:52	BL
SW846 3015 SPLP				
Sample Preparation			07/14/05 05:00	JMM

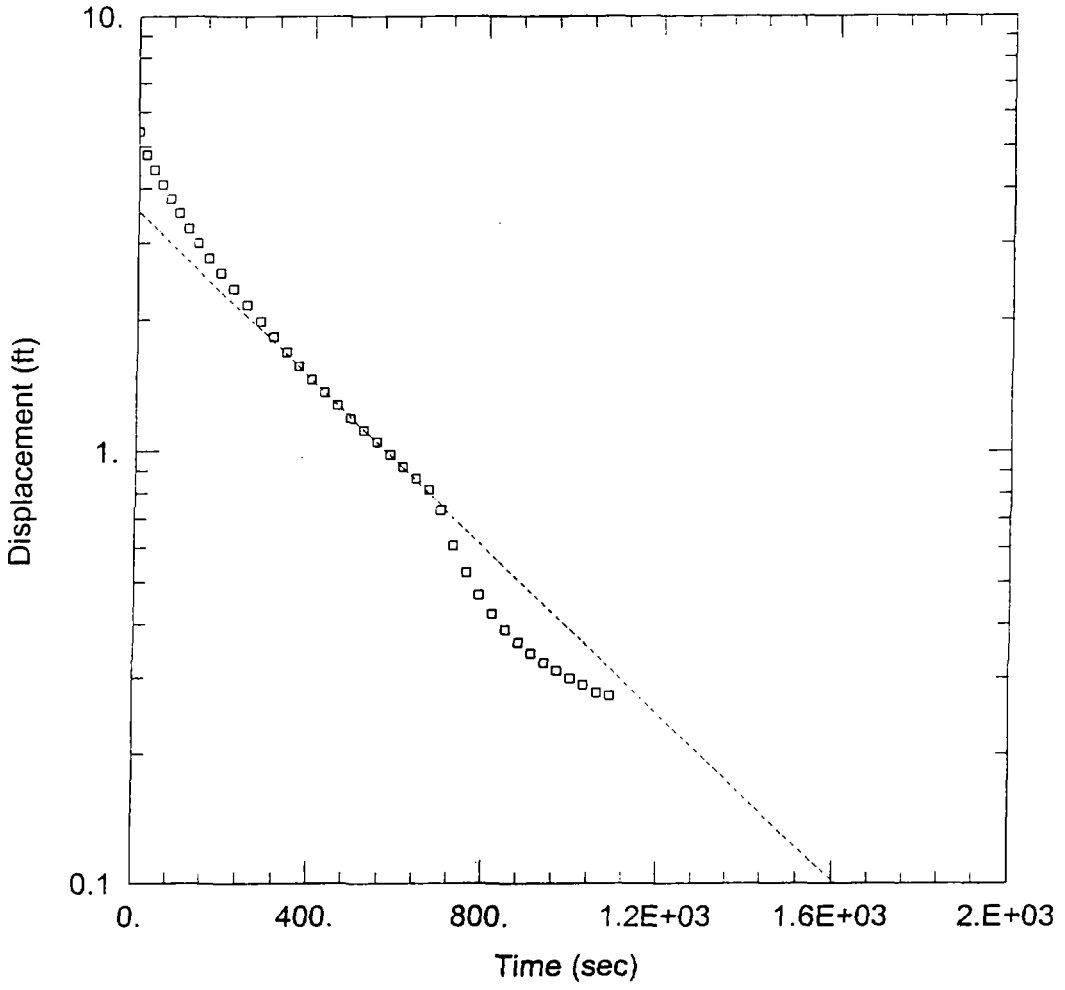
PDC Laboratories participates in the following laboratory accreditation/certification and proficiency programs. Endorsement by the Federal or State Government or their agencies is not implied.

NELAC Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
State of Illinois Bacteriological Analysis in Drinking Water Certified Lab Registry No. 17533
Drinking Water Certifications: Indiana (C-IL-040); Kansas (E-10338); Kentucky (90058); Missouri (00870); Wisconsin (998294430)
Wastewater Certifications: Arkansas; Iowa (240); Kansas (E-10338); Wisconsin (99829443)
Hazardous/Solid Waste Certifications: Arkansas; Kansas (E-10338); Wisconsin (998294430)
UST Certification: Iowa (240)

Certified by : _____
Kurt C. Stepping, Director of Client Services

APPENDIX B

...LOG TEST RESULTS



MW-3 SLUG OUT

Data Set: I:\Documents\2002\42209\CMC\MW-3 Pump Out.aqt
Date: 05/19/03 Time: 14:38:25

PROJECT INFORMATION

Company: Fehr-Graham & Associates
Client: City of Freeport
Project: 42209
Test Well: MW-3
Test Date: 5/16/03

AQUIFER DATA

Saturated Thickness: 12.6 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-3)

Initial Displacement: 5.406 ft
Total Well Penetration Depth: 12.6 ft
Casing Radius: 0.083 ft
Static Water Column Height: 12.6 ft
Screen Length: 10. ft
Wellbore Radius: 0.333 ft
Gravel Pack Porosity: 0.15

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 0.0002065 cm/sec
y0 = 3.548 ft

Data Set: I:\Documents\2002\42209\CMC\MW-3 Pump Out.aqt
Title: MW-3 SLUG OUT
Date: 05/19/03
Time: 14:38:39

PROJECT INFORMATION

Company: Fehr-Graham & Associates
Client: City of Freeport
Project: 42209
Test Date: 5/16/03
Test Well: MW-3

AQUIFER DATA

Saturated Thickness: 12.6 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: : MW-3

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 5.406 ft
Static Water Column Height: 12.6 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 12.6 ft
Corrected Casing Radius (Bouwer-Rice Method): 0.15 ft
Gravel Pack Porosity: 0.15

No. of Observations: 39

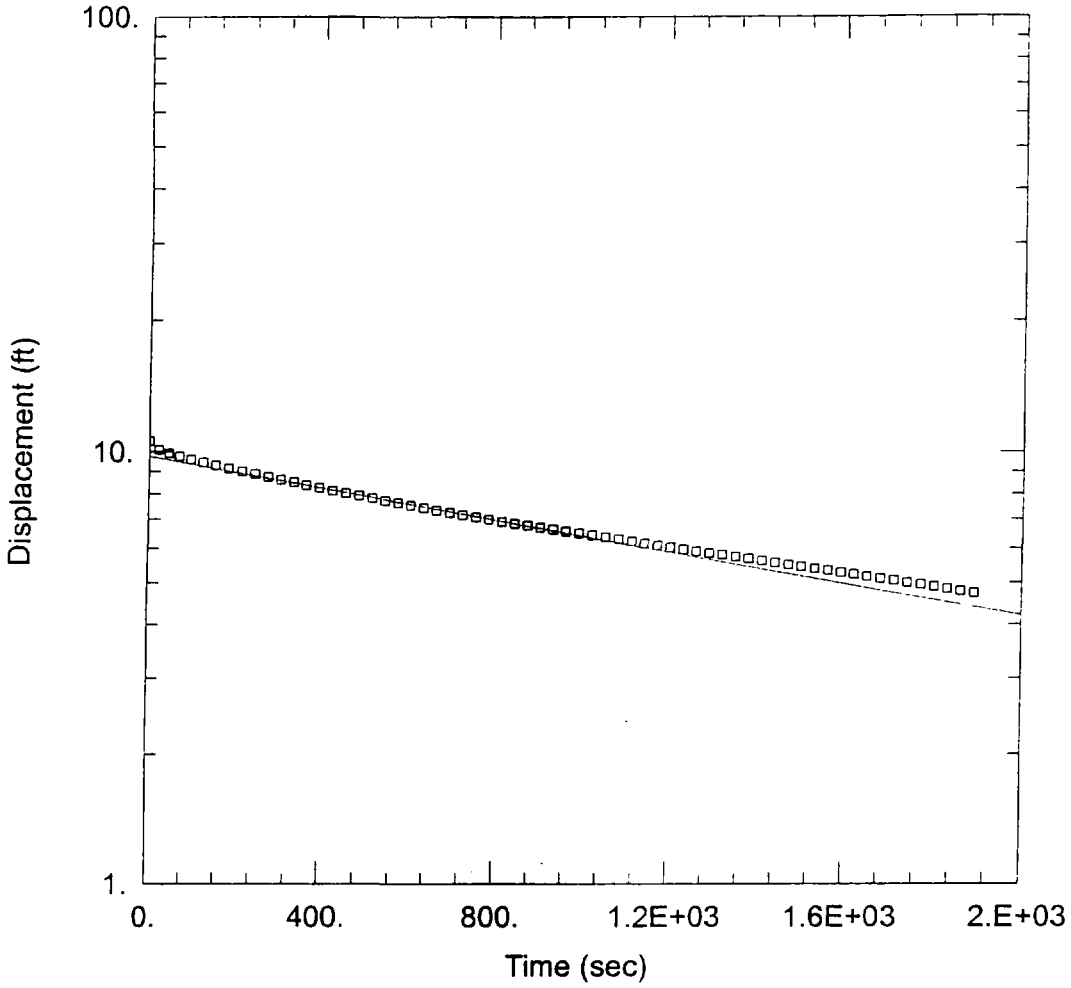
Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
16.8	4.786	550.3	1.049
34.6	4.412	580.3	0.98
53.4	4.082	610.3	0.92
73.3	3.784	640.3	0.866
94.4	3.516	670.3	0.815
116.8	3.242	700.3	0.733
140.5	3.003	730.3	0.607
165.6	2.771	760.3	0.527
192.2	2.568	790.3	0.467
220.4	2.356	820.3	0.422
250.3	2.163	850.3	0.388
280.3	1.983	880.3	0.362
310.3	1.829	910.3	0.342
340.3	1.683	940.3	0.325
370.3	1.565	970.3	0.312
400.3	1.46	1000.3	0.299
430.3	1.366	1030.3	0.289
460.3	1.276	1060.3	0.277
490.3	1.19	1090.3	0.273
520.3	1.117		

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
Shape Factor: 2.715

VISUAL ESTIMATION RESULTS



MW-4 SLUG OUT

Data Set: I:\Documents\2002\42209\CMC\MW-4 Pump Out.aqt
Date: 05/19/03 Time: 14:35:40

PROJECT INFORMATION

Company: Fehr-Graham & Associates
Client: City of Freeport
Project: 42209
Test Well: MW-4
Test Date: 5/16/03

AQUIFER DATA

Saturated Thickness: 11.43 ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW-4)

Initial Displacement: 10.57 ft
Total Well Penetration Depth: 11.43 ft
Casing Radius: 0.083 ft
Static Water Column Height: 11.43 ft
Screen Length: 10. ft
Wellbore Radius: 0.333 ft
Gravel Pack Porosity: 0.15

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 3.827E-05 cm/sec
y0 = 9.747 ft

Data Set: I:\Documents\2002\42209\CMC\MW-4 Pump Out.aqt
Title: MW-4 SLUG OUT
Date: 05/19/03
Time: 14:35:54

PROJECT INFORMATION

Company: Fehr-Graham & Associates
Client: City of Freeport
Project: 42209
Test Date: 5/16/03
Test Well: MW-4

AQUIFER DATA

Saturated Thickness: 11.43 ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: : MW-4

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 10.57 ft
Static Water Column Height: 11.43 ft
Casing Radius: 0.083 ft
Wellbore Radius: 0.333 ft
Well Skin Radius: 0.333 ft
Screen Length: 10. ft
Total Well Penetration Depth: 11.43 ft
Corrected Casing Radius (Bouwer-Rice Method): 0.15 ft
Gravel Pack Porosity: 0.15

No. of Observations: 64

Observation Data

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
22.4	10.09	965.9	6.554
46.1	9.914	995.9	6.486
71.2	9.75	1025.9	6.419
97.8	9.596	1055.9	6.355
126.	9.443	1085.9	6.291
155.9	9.295	1115.9	6.224
185.9	9.141	1145.9	6.16
215.9	9.001	1175.9	6.095
245.9	8.875	1205.9	6.035
275.9	8.751	1235.9	5.973
305.9	8.618	1265.9	5.913
335.9	8.493	1295.9	5.853
365.9	8.371	1325.9	5.795
395.9	8.253	1355.9	5.737
425.9	8.135	1385.9	5.677
455.9	8.024	1415.9	5.617
485.9	7.918	1445.9	5.559
515.9	7.811	1475.9	5.501
545.9	7.71	1505.9	5.445
575.9	7.612	1535.9	5.389
605.9	7.515	1565.9	5.336
635.9	7.421	1595.9	5.278
665.9	7.331	1625.9	5.222
695.9	7.241	1655.9	5.168
725.9	7.155	1685.9	5.113
755.9	7.069	1715.9	5.055
785.9	6.983	1745.9	5.003
815.9	6.9	1775.9	4.949
845.9	6.829	1805.9	4.894

Time (sec)	Displacement (ft)	Time (sec)	Displacement (ft)
875.9	6.758	1835.9	4.84
905.9	6.687	1865.9	4.786
935.9	6.619	1895.9	4.732

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
Shape Factor: 2.655

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	3.827E-05	cm/sec
y0	9.747	ft

PENDIX

NDWATER

Groundwater Ingestion Exposure Route (Class I) - Lead
(MW-3 to Tier 1 Remediation Objective)
Site Name: CMC
Location: Freeport, IL
IEMA Incident #:
FGA Project #: 45399

Parameter	Symbol	Input/Value	Units	Calulated Value	Units
Distance from planar source to the location of concern, along center line of the plume parallel to the down-gradient direction of groundwater flow.	X	120	feet	3657.6	cm
First Order Degradation Constant	λ			0	d^{-1}
Hydraulic Conductivity	K	2.07E-04	cm/s	1.78E+01	cm/d
Hydraulic Gradient	i			0.00088	unitless
Total Soil Porosity	θ_T			0.32	unitless
Source width Perpendicular to Groundwater Flow Direction in Horizontal Plane	S_w	50	feet	1524	cm
Source Width Perpendicular to Groundwater Flow Direction in Vertical Plane	S_d	10	feet	304.8	cm
Calculations					
R16					
Longitudinal Dispersitivity	α_x			365.76	cm
R17					
Transverse Dispersitivity	α_y			1.22E+02	cm
R18					
Vertical Dispersitivity	α_z			18.288	cm
R19					
Specific Discharge	U			0.0490644	cm/d
R26					
Standard at Point of Compliance				0.0075	mg/L
Groundwater source concentration	$C_{source(a)}$ =			0.0217	mg/L
Groundwater concentration X feet from source	$C_{(x)}$ =			**0.0075**	mg/L
Calculated Remediation Objective at the Source with point of compliance X feet from the source.	$C_{source(c)}$ =			**0.0217**	mg/L

Groundwater Ingestion Exposure Route (Class I) - Manganese
(MW-4 to Tier 1 Remediation Objective)
Site Name: CMC
Location: Freeport, IL
IEMA Incident #:
FGA Project #: 43494 - A11

Parameter	Symbol	Input/Value	Units	Calulated Value	Units
Distance from planar source to the location of concern, along center line of the plume parallel to the down-gradient direction of groundwater flow.	X	815	feet	24841.2	cm
First Order Degradation Constant	λ			0	d^{-1}
Hydraulic Conductivity	K	2.07E-04	cm/s	1.78E+01	cm/d
Hydraulic Gradient	i			0.00088	unitless
Total Soil Porosity	θ_T			0.32	unitless
Source width Perpendicular to Groundwater Flow Direction in Horizontal Plane	S_w	50	feet	1524	cm
Source Width Perpendicular to Groundwater Flow Direction in Vertical Plane	S_d	10	feet	304.8	cm
Calculations					
R16					
Longitudinal Dispersitivity	α_x			2484.12	cm
R17					
Transverse Dispersitivity	α_y			8.28E+02	cm
R18					
Vertical Dispersitivity	α_z			124.206	cm
R19					
Specific Discharge	U			0.0490644	cm/d
R26					
Standard at Point of Compliance				0.150	mg/L
Groundwater source concentration	$C_{source(a)}$ =			16.2	mg/L
Groundwater concentration X feet from source	$C_{(x)}$ =			**0.150**	mg/L
Calculated Remediation Objective at the Source with point of compliance X feet from the source.	$C_{source(c)}$ =			**16.2**	mg/L

NDIX

DWATER

MEMORANDUM OF UNDERSTANDING BETWEEN THE CITY OF FREEPORT AND THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY REGARDING THE USE OF A LOCAL GROUNDWATER OR WATER WELL ORDINANCE AS AN ENVIRONMENTAL INSTITUTIONAL CONTROL

I. PURPOSE AND INTENT

A. This Memorandum of Understanding ("MOU") between the City of Freeport and the Illinois Environmental Protection Agency ("Illinois EPA") is entered into for the purpose of satisfying the requirements of 35 Ill. Adm. Code 742.1015 for the use of groundwater or water well ordinances as environmental institutional controls. The Illinois EPA has reviewed the groundwater or water well ordinance of the City of Freeport (Attachment A) and determined that the ordinance prohibits the use of groundwater for potable purposes and/or the installation and use of new potable water supply wells by private entities but does not expressly prohibit those activities by the unit of local government itself. In such cases, 35 Ill. Adm. Code 742.1015(a) provides that the unit of local government may enter into an MOU with the Illinois EPA to allow the use of the ordinance as an institutional control.

B. The intent of this Memorandum of Understanding is to specify the responsibilities that must be assumed by the unit of local government to satisfy the requirements for MOUs as set forth at 35 Ill. Adm. Code 742.1015(i).

II. DECLARATIONS AND ASSUMPTION OF RESPONSIBILITY

In order to ensure the long-term integrity of the groundwater or water well ordinance as an environmental institutional control and that risk to human health and the environment from contamination left in place in reliance on the groundwater or water well ordinance is effectively managed, the City of Freeport hereby assumes the following responsibilities pursuant to 35 Ill. Adm. Code 742.1015(d)(2) and (i):

A. The City of Freeport will notify the Illinois EPA Bureau of Land of any proposed ordinance changes or requests for variance at least 30 days prior to the date the local government is scheduled to take action on the proposed change or request (35 Ill. Adm. Code 742.1015(i)(4));

B. The City of Freeport will maintain a registry of all sites within its corporate limits that have received "No Further Remediation" determinations from the Illinois EPA (35 Ill. Adm. Code 742.1015(i)(5));

C. The City of Freeport will review the registry of sites established under paragraph II. B. prior to siting public potable water supply wells within the area covered by the ordinance (35 Ill. Adm. Code 742.1015(i)(6)(A));

D. The City of Freeport will determine whether the potential source of potable water has been or may be affected by contamination left in place at the sites tracked and reviewed under paragraphs II. B. and C. (35 Ill. Adm. Code 742.1015(i)(6)(B)); and

E. The City of Freeport will take action as necessary to ensure that the potential source of potable water is protected from contamination or treated before it is used as a potable water supply (35 Ill. Adm. Code 742.1015(i)(6)(C)).

NOTE: Notification under paragraph II. A. above or other communications concerning this MOU should be directed to:

Manager, Division of Remediation Management
Bureau of Land
Illinois Environmental Protection Agency
P.O. Box 19276
Springfield, IL 62794-9276

III. SUPPORTING DOCUMENTATION

The following documentation is required by 35 Ill. Adm. Code 742.1015(i) and is attached to this MOU:

A. Attachment A: A copy of the groundwater or water well ordinance certified by the city clerk or other official as the current, controlling law (35 Ill. Adm. Code 742.1015(i)(3));
B. Attachment B: Identification of the legal boundaries within which the ordinance is applicable certification by city clerk or other official that the ordinance is applicable everywhere within the corporate limits; if ordinance is not applicable throughout the entire city or village, legal description and map of area showing sufficient detail to determine where ordinance is applicable) (35 Ill. Adm. Code 742.1015(i)(2));
C. Attachment C: A statement of the authority of the unit of local government to enter into the MOU council resolution, code of ordinances, inherent powers of mayor or other official signing MOU -- attach copies) (35 Ill. Adm. Code 742.1015(i)(1)).

IN WITNESS WHEREOF, the lawful representatives of the parties have caused this MOU to be signed as follows:

FOR: The City of Freeport

BY: _____ DATE: 8-9-04
(James L. Gitz, Mayor)

FOR: Illinois Environmental Protection Agency

BY: Gary P. King DATE: 8/20/04
(Name and title of signatory)
Manager, Division of Remediation Management

City Clerk's Certificate of Copy

STATE OF ILLINOIS
SS.
STEPHENSON COUNTY

I, Latacia M. Ishmon, City Clerk of the City of Freeport, Illinois, do hereby certify that the attached are true and correct copies of Ordinance #2004-12, An ordinance prohibiting the use of Groundwater as a potable water supply by the installation or use of potable water supply wells or by any other method, passed by the Freeport City Council on March 15, 2004.

I further certify that as City Clerk, I am the keeper of all city records, ordinances and resolutions and that the originals of the attached documents are on file in my office.

In Witness Whereof, I have herewith set my hand and affixed the seal of the City of Freeport, Illinois, this 10th day of August, 2004.

Latacia M Ishmon

City Clerk

Attachment A

CITY OF FREEPORT

STEPHENSON COUNTY, ILLINOIS

ORDINANCE NO. 2004-12

AN ORDINANCE PROHIBITING THE USE OF GROUNDWATER AS A POTABLE WATER SUPPLY BY THE INSTALLATION OR USE OF POTABLE WATER SUPPLY WELLS OR BY ANY OTHER METHOD

ADOPTED BY THE

CITY COUNCIL

OF THE

CITY OF FREEPORT, ILLINOIS

THIS 15th DAY OF March, 2004

Published in pamphlet form by authority of the City Council of the City of Freeport, Stephenson County, Illinois, this 15th day of March, 2004.

G:data/clerk/ordinances 2004/groundwater

1ST READING 2-2-04
LAID OVER TO 3-15-04

AN ORDINANCE PROHIBITING THE USE OF GROUNDWATER AS A POTABLE WATER SUPPLY BY THE INSTALLATION OR USE OF POTABLE WATER SUPPLY WELLS OR BY ANY OTHER METHOD

ORDINANCE NO. 2004-12

WHEREAS, certain properties in the City of Freeport, Illinois have been used over a period of time for commercial/industrial purposes; and

WHEREAS, because of said use, concentrations of certain chemical constituents in the groundwater beneath the City may exceed Class I groundwater quality standards for potable resource groundwater as set for the in 35 Illinois Administrative Code 620 or Tier 1 residential remediation objectives as set forth in 35 Illinois Administrative Code 742; and

WHEREAS, the City of Freeport desires to limit potential threats to human health from groundwater contamination while facilitating the redevelopment and productive use of properties that are the source of said chemical constituents;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF FREEPORT, ILLINOIS as follows:

Section 1. Use of groundwater as a potable water supply prohibited. Except for such uses or methods in existence before the effective date of this ordinance, the use or attempt to use as a potable water supply groundwater from certain areas within the corporate limits of the City of Freeport, specifically described in Attachment A hereto, by the installation or drilling of wells or by any other method is hereby prohibited, except at points of withdrawal by the City of Freeport.

Section 2. Any person violating the provisions of this ordinance shall be subject to a fine of up to $ 700.00 for each violation.

Section 3. Definitions.

"Person" is any individual, partnership, co-partnership, firm, company, limited liability company, corporation, association, joint stock company, trust, estate, political subdivision, or any other legal entity, or their legal representatives, agents or assigns.

"Potable water" is any water used for human or domestic consumption, including, but not limited to, water used for drinking, bathing, swimming, washing dishes, or preparing foods.

Section 4. Memorandum of Understanding.

The Mayor of the City of Freeport is hereby authorized and directed to enter into a Memorandum of Understanding with the Illinois Environmental

Protection agency ("Illinois EPA") in which the City of Freeport assumes responsibility for tracking remediated sites, notifying the Illinois EPA of changes to this ordinance, and taking certain precautions when siting public potable water supply wells.

Section 5. This Ordinance shall be effective immediately upon its passage by the City Council, its approval by the Mayor, and its publication as provided by law.

Section 6. This Ordinance is expressly adopted pursuant to the Home Rule Powers of the City of Freeport under Section 6 of Article VII of the Illinois Constitution of 1970.

Section 7. All ordinances or parts of ordinances in conflict with this Ordinance are repealed insofar as they conflict.

Section 8. If any section, clause or provision of this Ordinance be declared by a Court of competent jurisdiction to be invalid, such decision shall not affect the validity of the Ordinance as a whole or any part thereof, other than the part so declared to be invalid, and this City Council hereby expressly declares that it would have enacted this Ordinance even with the invalid portion deleted.

PASSED BY THE CITY COUNCIL OF THE CITY OF FREEPORT, ILLINOIS this 15th day of March, 2004.

Latacia M. Ishmon

Latacia M. Ishmon, City Clerk

YEAS: 8
NAYS: 0
ABSTAIN: 0
PRESENT: 0

APPROVED by the Mayor of the City of Freeport this 16th day of March, 2004.

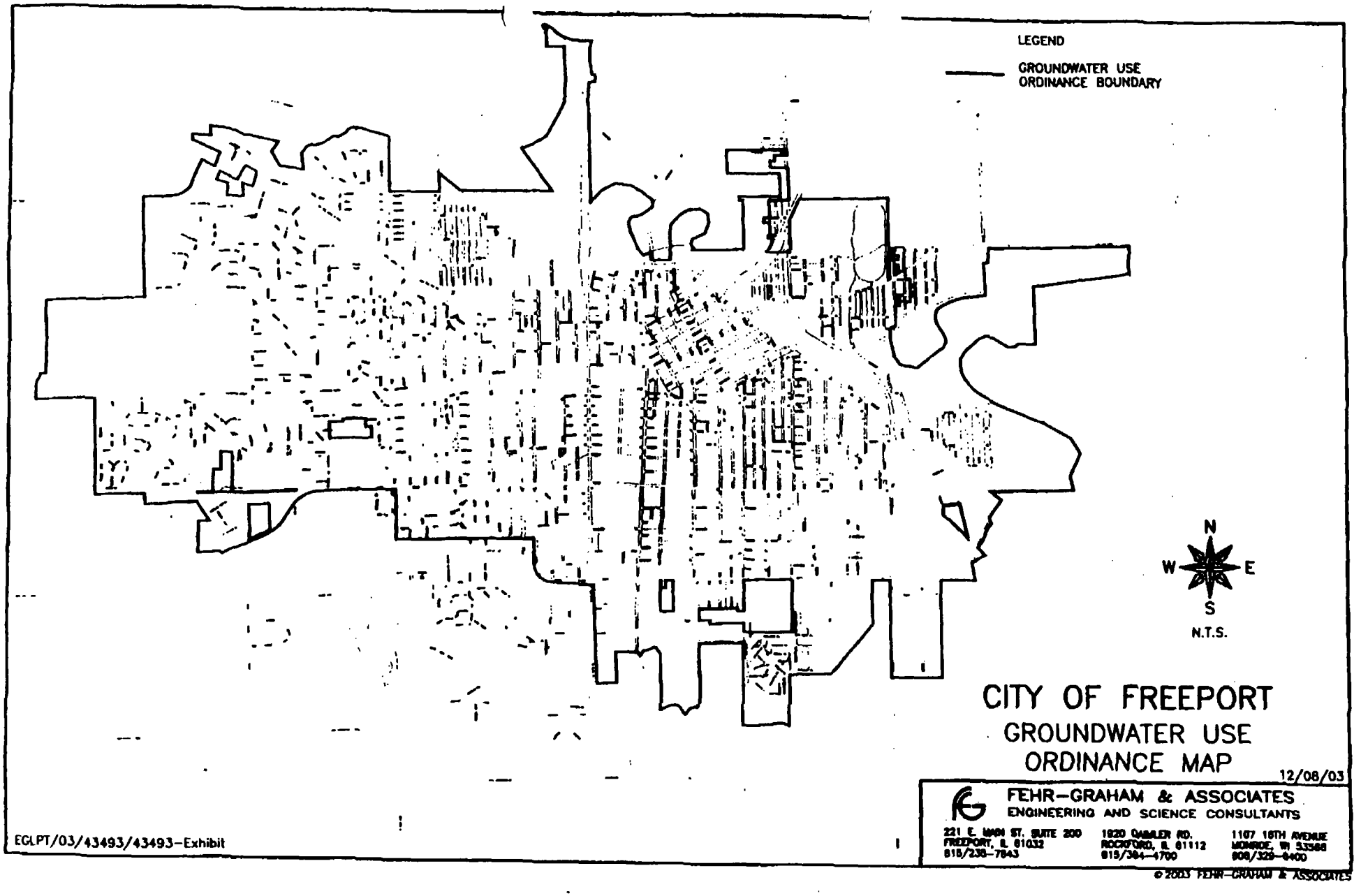
James L. Gitz

James L. Gitz, Mayor

Date Published: 3-15-04

Date Effective: 3-16-04

G:data/clerk/ordinances 2004/groundwater



CITY OF FREEPORT
GROUNDWATER USE ORDINANCE MAP

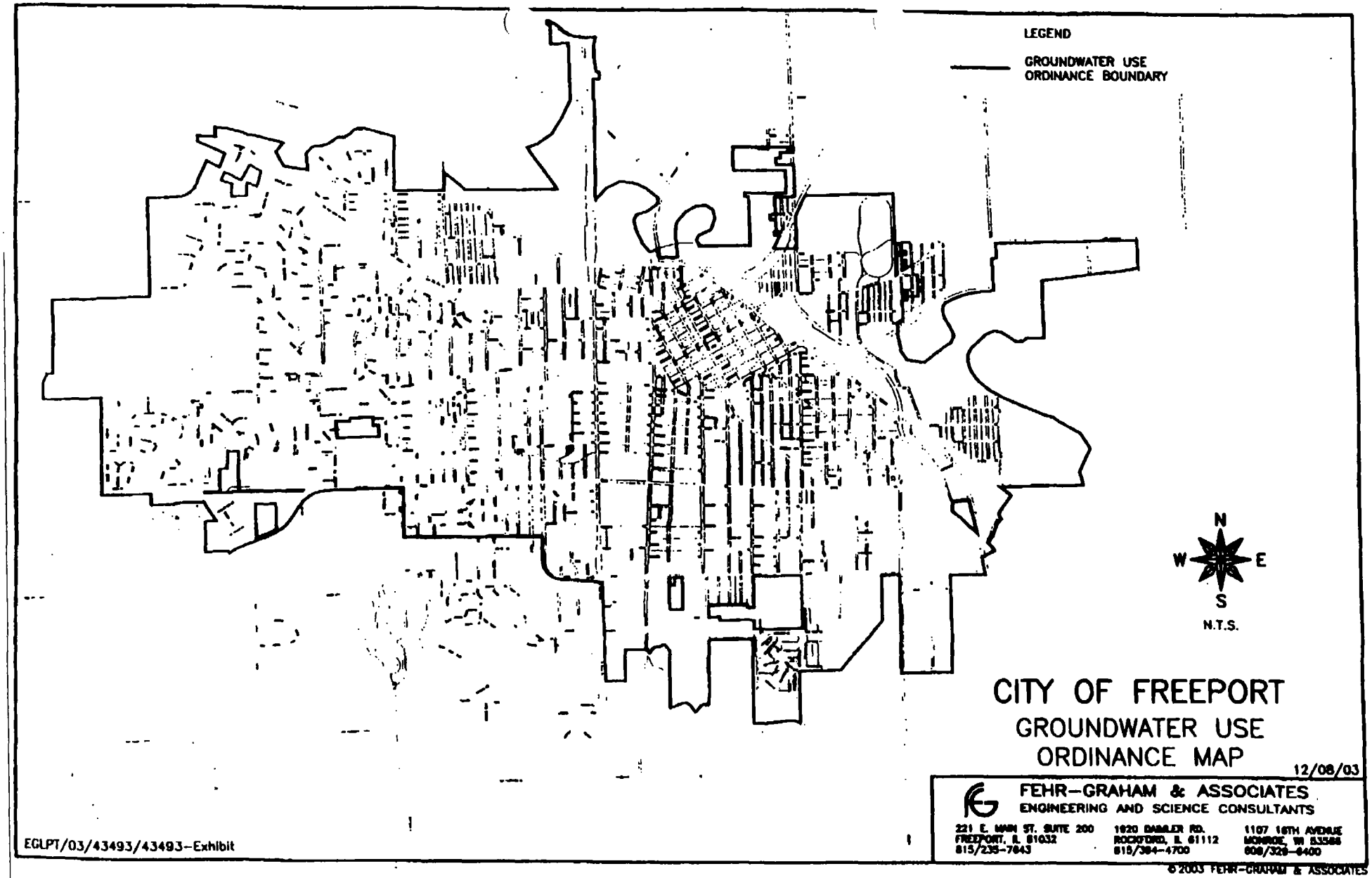
12/08/03

FEHR-GRAHAM & ASSOCIATES
ENGINEERING AND SCIENCE CONSULTANTS
221 E. MAIN ST. SUITE 200, FREEPORT, IL 61032, 815/235-7843
1920 DAMALER RD., ROCKFORD, IL 61112, 815/394-4700
1107 16TH AVENUE, MONROE, WI 53566, 608/329-8400

EGLPT/03/43493/43493-Exhibit

ATTACHMENT A

MAP



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City of Freeport, Illinois

Sarah M. Griffin, Corporation Counsel

230 W. Stephenson St., Freeport, Illinois 61032

(815) 235-8206 Fax:: (815) 235-8874

August 9, 2004

Marc Cummings
IEPA
Voluntary Site Remediation Unit
PO Box 19276
Springfield, IL 62794-9276

Re: Statement of Authority

Dear Mr. Cummings:

Please be advised that the statement of authority to enter into the Memorandum of Understanding can be found in Section 4 of Freeport Codified Ordinance No. 2004-12.

Sincerely,

Sarah M. Griffin

Attachment C

FEHR-GRAHAM & ASSOCIATES
Engineering and Science Consultants

Civil • Surveying • EHS • Municipal • IT